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Service Manual

The photo shows the model KE-2535/UC

ORDER NO.
CRT 1195

CASSETTE CAR STEREO WITH FM/AM ELECTRONIC TUNER

KE-2535 UC, ES
KE-2424 UC, ES
KE-1414 UC, ES
KE-2022 US
KE-1022 US

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PIONEER ELECTRONIC CORPORATION 4-1, Meguro 1-Chome, Meguro-ku, Tokyo 153, Japan
PIONEER ELECTRONICS SERVICE INC. P.O. Box 1760, Long Beach, California 90801 U.S.A.
PIONEER ELECTRONICS OF CANADA, INC. 505 Cochrane Drive, Markham, Ontario L3R 6B8 Canada
PIONEER ELECTRONIC [EUROPE] N.V. Keetberglaan 1, 2740 Beveren, Belguim
PIONEER ELECTRONICS AUSTRALIA PTY. LTD. 178-184 Boundary Road, Braeside, Victoria 3195, Australia TEL: [03] 580-9911

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1. SPECIFICATION

General

Power source........ 14.4 V DC (10.8 — 15.6 V allowable)
Grounding system ....Negative type
Max. Current consumption
  (KE-2424, 1414, 2022, 1022).................................1.7 A
  (KE-2535)...2.5 A
Dimensions
  (Chassis)....................170 (W) × 50 (H) × 130 (D) mm
    [6-3/4 (W) × 2 (H) × 5-1/8 (D) in.]
  (nose) ....105 (W) × 42 (H) × 39 (D) mm
    [4-1/8 (W) × 1-5/8 (H) × 1-1/2 (D) in.]
Shaft interval...147 mm
Weight.. 1.3 kg (2.9 lbs.)

Amplifier

Continuous power output is 3.2 W per channel min. into 4 ohms, both channels driven 50 to 15,000 Hz with no more than 5% THD.

Maximum power output
  (KE-2424, 1414, 2022, 1022)............8.5 W × 2 (EIAJ)
  (KE-2535)......................................8.5 W × 2/7 W × 4
Continuous power output (ES Model) ....4.5 W × 2
Load impedance
  (KE-2424, 1414, 2022, 1022)...4 Ω (2 — 8 Ω allowable)
  (KE-2535)..................................4 Ω (4 — 8 Ω allowable)
Loudness contour ...+8 dB (100 Hz) (Volume: −30 dB)

Tape player

Tape .... Compact cassette type (C-30 — C-90)
Tape speed..4.76 cm/sec.
  (+0.14 cm/sec., −0.05 cm/sec.)
Fast forward/rewind time.....Approx. 100 sec. for C-60
Wow & flutter ....0.13% (WRMS)
Frequency response ....50 — 14,000 Hz (±3 dB)
Stereo separation...45 dB
Signal-to-noise ratio
  (US, UC Model)....................... 52 dB (IHF-A network)
  (ES Model).............................. 52 dB (IEC-A network)

FM tuner

Frequency range (UC, US Model).....87.9 — 107.9 MHz
  (ES Model) ....87.5 — 108 MHz
Usable sensitivity............. 15 dBf (1.6 μV/75 Ω, mono)
50dB quieting sensitivity...20 dBf (2.8 μV/75 Ω, mono)
Signal-to-noise ratio
  (UC, US Model)....................... 70 dB (IHF-A network)
  (ES Model)............................. 70 dB (IEC-A network)
Distortion ....0.3% (at 65 dBf, 1 kHz, stereo)
Frequency response ....50 — 15,000 Hz (±3 dB)
Stereo separation.....................35 dB (at 65 dBf, 1 kHz)
Selectivity (UC, US Model).......................70 dB (2 ACA)
  (±400 kHz)

AM tuner (UC, US Model)

Frequency range .... 530 — 1,620 kHz
Usable sensitivity................ 18 μV (25 dB) (S/N: 20 dB)
Selectivity..50 dB (±10 kHz)

AM tuner (ES Model)

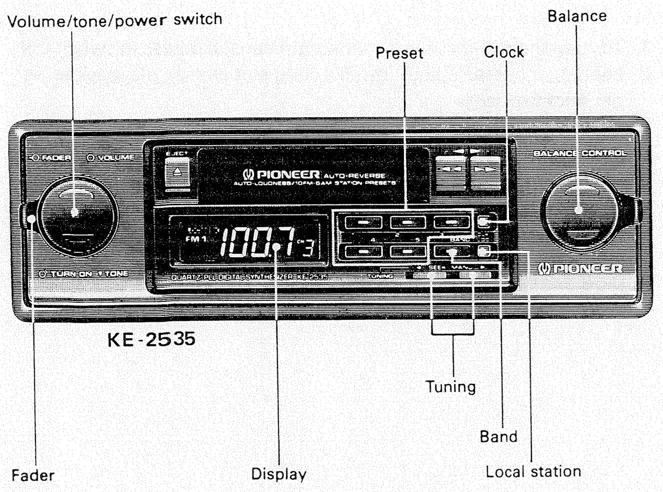
Frequency range
  (10 kHz channel step)....................... 530 — 1,620 kHz
  (9 kHz channel step)..........................531 — 1,602 kHz
Usable sensitivity................ 18 μV (25 dB) (S/N: 20 dB)
Selectivity (10 kHz channel step)..........50 dB (±10 kHz)
  (9 kHz channel step)........... 50 dB (±9 kHz)

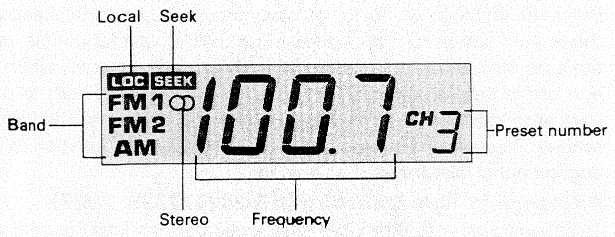
These specifications were determined and are presented in accordance with specification standards established by the Ad Hoc Committee of Car Stereo Manufacturers.

Note:
Specifications and the design are subject to possible modification without notice due to improvements.

2. OPERATION

● Using the Radio





● Auto-Loudness

When playing back a tape or listening to the radio at low volume, the low tone is automatically emphasized.

● Clock Switch

Each press causes the display to switch between clock and frequency.

Seek Tuning (ES Model)

Press the left and right tuning buttons simultaneously, and tuning to the next higher or lower broadcast on the band can be accomplished automatically by simply pressing either the left or right side of the tuning button. FM frequencies change in 50 kHz steps while those in the AM band change in 10 kHz steps.

- AM frequencies are tuned in 9 kHz steps after the tuning steps are changed.

Manual Tuning (ES Model)

When manual tuning is employed, FM frequencies change in 50 kHz steps while AM frequencies change in 10 kHz steps.

- AM frequencies are tuned in 9 kHz steps after the tuning steps are changed.

1. Press the left and right tuning buttons simultaneously and the seek tuning indicator will disappear from the display.
2. Change the frequency by pressing either the left or right side of the tuning button. Pressing the button once will change the frequency one step (see above). Continuously depressing either side of the button will successively change the frequency at the prescribed step.

● Before attempting operation...

- Set the fader control to the left horizontal.
- Since the set is designed preferentially for tape play, eject a cassette tape, if mounted, before operating the radio.

1. Turning the power switch to the right causes power to switch ON and the current frequency to appear on the display.
2. Press the band switch to select the band.
3. Press the left and right tuning buttons simultaneously and the seek tuning indicator will appear on the display.
4. Press either the left or right side of the tuning buttons to tune in the desired frequency. (Pressing the right side will increase the frequency.)
5. Adjust the volume and balance.
6. Adjust the tone to an appropriate level. To adjust the tone, pull the knob toward you and set it to the desired level.

● To enter a frequency into the preset memory...

7. Hold down one of the preset buttons (1-5) for approximately two seconds. The frequency is stored in memory (assigned to the preset button pressed) once the preset number stops flashing on the display.
   Five FM1 frequencies, five FM2 frequencies and five AM frequencies can be entered.

● Local Station Switch

Pressing this switch lowers the seek tuning reception sensitivity so that only stronger signals can be tuned in. This feature is convenient when driving through areas that have numerous radio stations. When this switch is depressed, the local indicator will be illuminated on the display.

● Fader Control (KE-2535)

This control is used to adjust the balance between the front and rear speakers when using a 4-speaker system. Turning the control upwards decreases the volume of the rear speakers, while turning it downwards decreases the volume of the front speakers. With 2-speaker systems, set this control to a horizontal position.

Preset Tuning

Pressing the preset button instantly tunes in the frequency programmed in the memory for that button.

Seek Tuning (US, UC Model)

Press the left and right tuning buttons simultaneously, and tuning to the next higher or lower broadcast on the band can be accomplished automatically by simply pressing either the left or right side of the tuning button. FM frequencies change in 0.2MHz steps while those in the AM band change in 10 kHz steps.

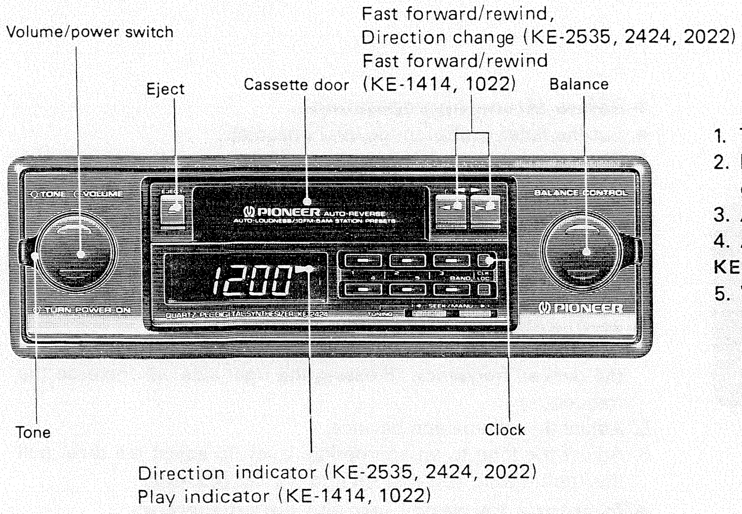
Manual Tuning (US, UC Model)

When manual tuning is employed, FM frequencies change in 0.2MHz steps while AM frequencies change in 10 kHz steps.

- AM frequencies are tuned in 9 kHz steps after the tuning steps are changed.

1. Press the left and right tuning buttons simultaneously and the seek tuning indicator will disappear from the display.
2. Change the frequency by pressing either the left or right side of the tuning button. Pressing the button once will change the frequency one step (see above). Continuously depressing either side of the button will successively change the frequency at the prescribed step.

● Using the Tape Deck



1. Turning the power switch to the right causes power to switch ON.
2. Loading a cassette tape into the load slot causes playback to begin automatically.
3. Adjust the volume and balance.
4. Adjust the tone.

KE-2424, 2535, 2022

5. When tape playback reaches the end of the tape, playback will automatically switch from the side being played to the opposite side (ie. Side A to Side B or vice versa) (Auto-reverse). To stop the tape during playback, press the eject button.

KE-1414, 1022

5. When playback reaches the end of the tape, the unit will automatically stop (Auto-stop). Press the eject button as far as it will go to stop the tape during playback.

- A loose or warped label on a cassette tape may interfere with the eject mechanism of the unit or cause the cassette to become jammed in the unit. Avoid using such tapes or remove such labels from the cassette before attempting use.
- Be sure to eject the tape when the vehicle's ignition is turned OFF. Leaving the tape in the unit can deform the pinch roller causing wow and flutter during tape playback.
- Loose tapes should be rewound with the aid of a pencil and unevenly wound tapes rewound with the use of the fast forward function.

● Fast Forward/Rewind (KE-2424, 2535, 2022)

Since the transport can be in either direction, both the left and right high-speed tape transport buttons can be regarded as fast forward/rewind buttons.

For fast forward, press the high-speed tape transport button that corresponds to the direction that is shown by the direction indicator. When the end of the tape is reached, playback will automatically begin from the opposite side of the tape (Auto-reverse).

For rewind, press the button that is opposite that of the direction shown by the direction indicator. When the end of the tape is reached, playback will automatically begin from the beginning of the same side of the tape (Auto-replay).

Fast forward and rewind can be terminated by pressing the respective opposite high-speed tape transport button.

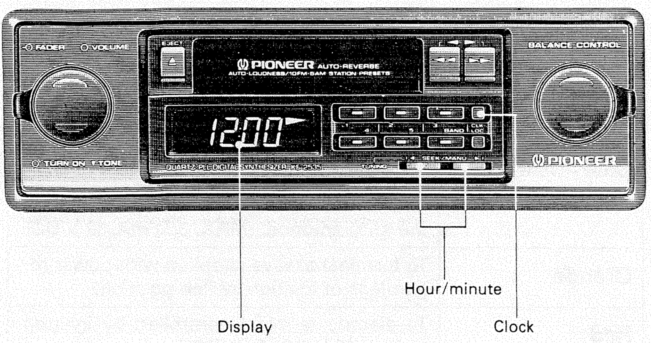
● Fast Forward/Rewind (KE-1414, 1022)

Press the fast forward button to advance the tape at high speed and the rewind button for high speed return. When fast forward is used, the auto-stop function will automatically stop the cassette when the end of the tape is reached. With rewind, the tape will start to playback automatically when the beginning of the tape is reached (Auto-replay). Press the button for the respective opposite function to disengage either fast forward or rewind.

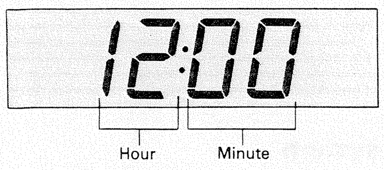
● Change in Tape Direction (KE-2424, 2535, 2022)

To change Side A to B or vice versa, push buttons Fast Forward and Rewind simultaneiously.

• Setting the time

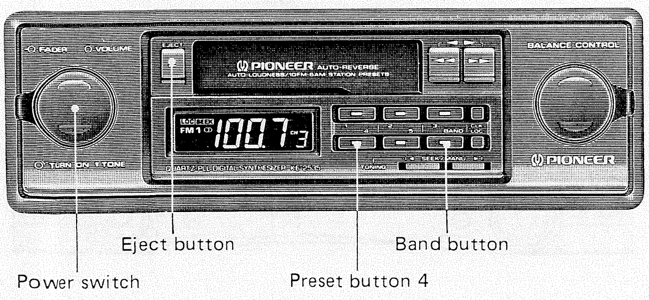


1. Press the clock switch to switch to the time display.
2. Each press of the left side of the hour/minute control button while holding down the clock switch advances hour display by one hour. Each press of the right side advances minute display one minute. Holding down either side of the hour/minute control button advances the respective hour/minute display at high speed.



• Switching the Tunig Steps (ES Model)

The AM tuning step for this unit can be switched between 9 kHz and 10 kHz. The tuning step is set to 10 kHz upon shipment from the factory. When using in places other than North, Central, and South America, switch to 9 kHz steps.



1. Press the eject button in fully and eject the cassette, then turn the power switch off.
2. The AM tuning step changes when the band button and preset button 4 are pressed simultaneously and the power switch is turned on. (The frequencies stored in the memory are cleared when this is done.)

- Changing the vehicle's battery sets the tuning steps and frequency range settings to their initial setting.

Specification		Initial Setting	New Setting
AM	Tuning steps	10 kHz steps	9 kHz steps
	Frequency range	530 — 1,620 kHz	531 — 1,602 kHz

3. CONNECTION

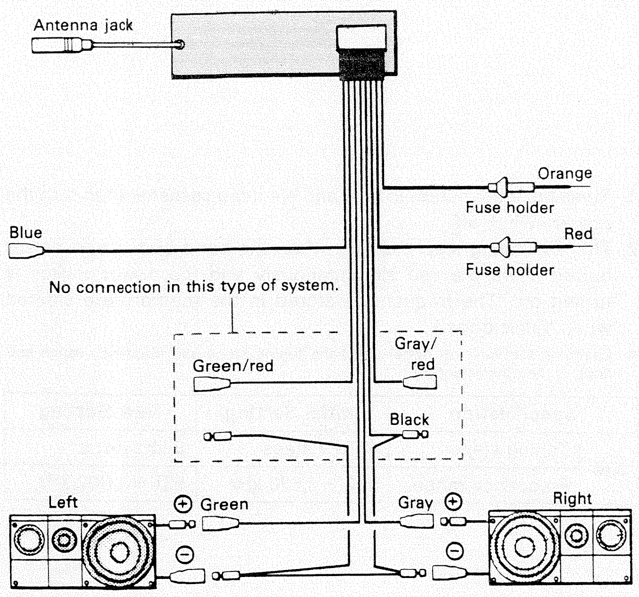
● KE-2535

Note:

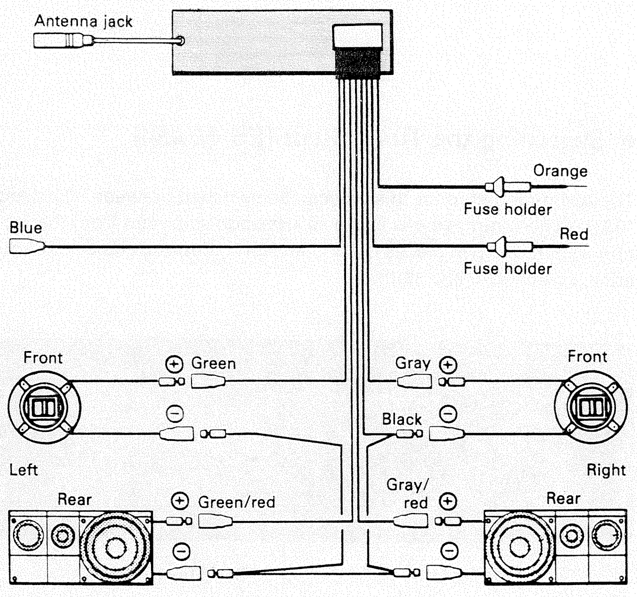
- To avoid shorts in the electrical system, be sure to disconnect the battery ⊖ cable before beginning installation.
- Replace fuses only with the types stipulated on the fuse holder.
- Be sure to properly connect the color coded leads. Failure to do so can cause malfunctions.
- Cover unused terminals with tape to prevent electrical shorts.
- When the power amp. is being linked with this system, be sure not to connect the blue lead to the amp.'s power terminal. Likewise, when linking this system with the auto-antenna, do not connect to power terminal for the antenna. Such connection can make overcurrent cause malfunctions.

Blue	If this unit is combined with a power amp, connect its blue lead to the blue lead (system control terminal) of the power amp. If combined with an auto-antenna, connect its blue lead to the relay control terminal of the auto-antenna. (MAX. 300 mA, 12 V DC)
Orange	To terminal always supplied with power regardless of ignition switch position.
Red	To electric terminal controlled by ignition switch (12 V DC) ON/OFF.

2-speaker system


Antenna jack
Orange
Fuse holder
Blue
Red
Fuse holder
No connection in this type of system.
Green/red
Gray/
red
Black
Left
⊕ Green
⊖
Gray ⊕
⊖
Right

4-speaker system

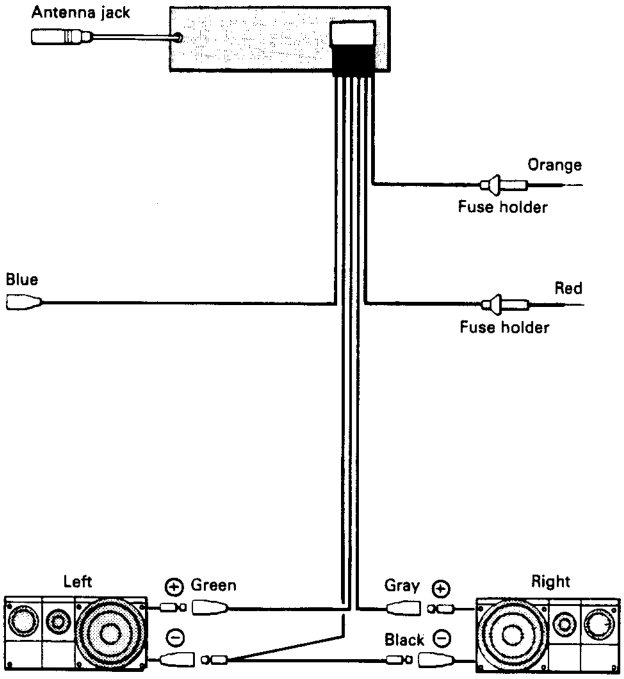

Antenna jack
Orange
Fuse holder
Blue
Red
Fuse holder
Front
⊕ Green
Gray ⊕
Front
⊖
Black ⊖
Left
Right
Rear
⊕ Green/red
Gray/
red ⊕
Rear
⊖
⊖

• KE-2424, 2022, 1414, 1022

Note:

- To avoid shorts in the electrical system, be sure to disconnect the battery ⊖ cable before beginning installation.
- Replace fuses only with the types stipulated on the fuse holder.
- Be sure to properly connect the color coded leads. Failure to do so can cause malfunctions.
- When the power amp. is being linked with this system, be sure not to connect the blue lead to the amp.'s power terminal. Likewise, when linking this system with the auto-antenna, do not connect to power terminal for the antenna. Such connection can make overcurrent cause malfunctions.

Blue	If this unit is combined with a power amp, connect its blue lead to the blue lead (system control terminal) of the power amp. If combined with an auto-antenna, connect its blue lead to the relay control terminal of the auto-antenna. (MAX. 300 mA, 12 V DC)
Orange	To terminal always supplied with power regardless of ignition switch position.
Red	To electric terminal controlled by ignition switch (12 V DC) ON/OFF.



4. MECHANISM DESCRIPTION (CZX4012)

• PLAY

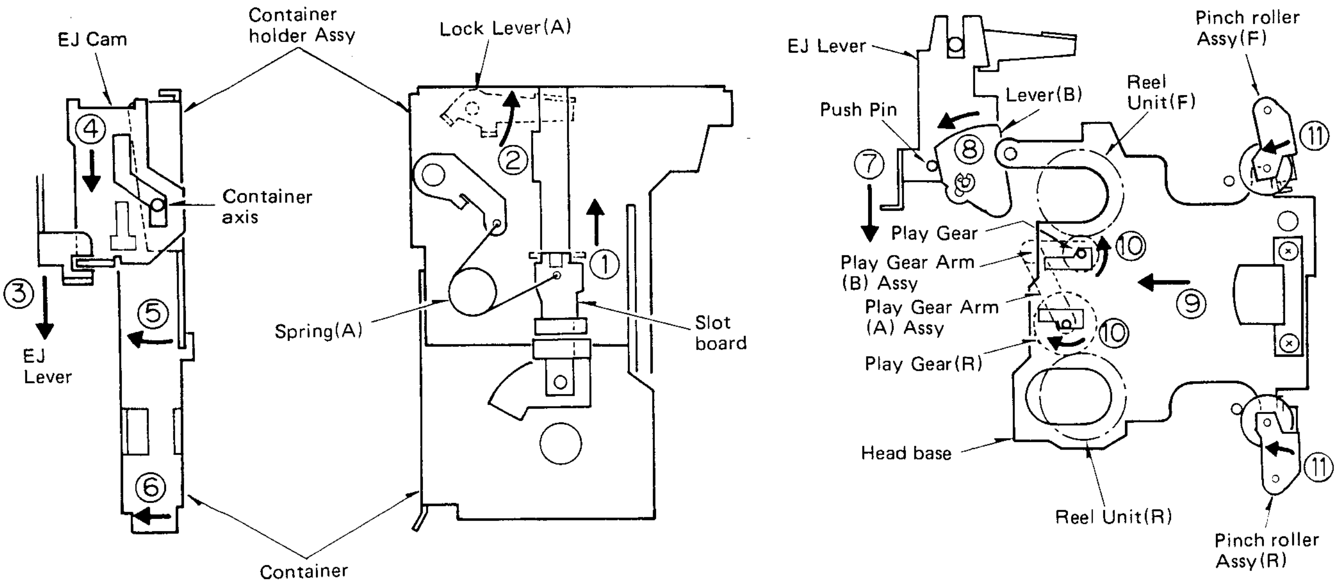

EJ Cam
Container holder Assy
Lock Lever(A)
④
Container axis
②
①
③
EJ Lever
⑤
Spring(A)
Slot board
⑥
Container
EJ Lever
Push Pin
Lever(B)
Reel Unit(F)
Pinch roller Assy(F)
⑦
⑧
⑪
Play Gear
Play Gear Arm (B) Assy
Play Gear Arm (A) Assy
Play Gear(R)
⑩
⑨
⑩
Head base
Reel Unit(R)
⑪
Pinch roller Assy(R)

Fig. 1

(1) When inserting a cassette tape, the slot board is taken in by the action of the spring (A) and when the lock lever (A) is kicked, the lock of the EJ lever is released. (① → ②)

(2) **The EJ lever lets the connected EJ cam operate and the container holder assembly is turned downward by the sliding movement of the cam section and the container axis. The cassette tape held in the container is moved to the PLAY position. (③ → ⑥)**

(3) Further, as the EJ lever moves, the head base held through the lever (B) advances to the PLAY position. At this time, the play gear and reel unit (F) (play gear and reel unit (R)) areengaged and the pinch roller assembly (F) (pinch roller assembly (R)) is been pushed against the capstan, then the PLAY mode is engaged. (⑦ → ⑪)

- **FF/REW**

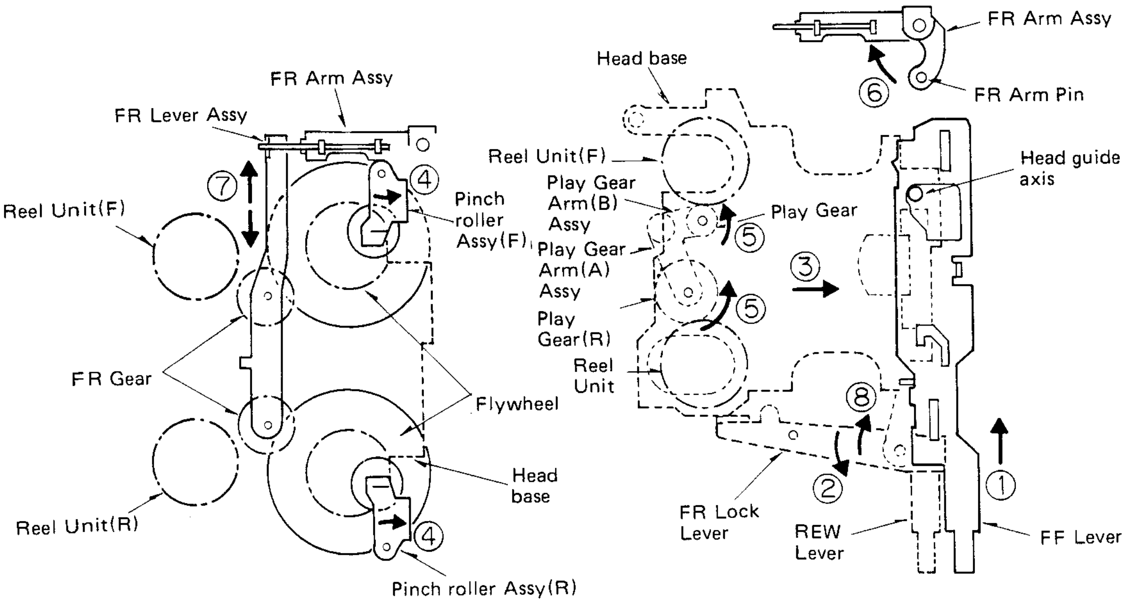

FR Arm Assy
FR Lever Assy
Reel Unit(F)
⑦
④
Pinch roller Assy(F)
FR Gear
Flywheel
Head base
Reel Unit(R)
④
Pinch roller Assy(R)
Head base
Reel Unit(F)
Play Gear Arm(B) Assy
Play Gear Arm(A) Assy
Play Gear(R)
Reel Unit
Play Gear
⑤
⑤
③
FR Arm Assy
⑥
FR Arm Pin
Head guide axis
⑧
②
①
FR Lock Lever
REW Lever
FF Lever

Fig. 2

(1) When the FF lever is pressed in, the FR lock lever is turned then the head base moves back by the sliding movement of the cam section of the FF lever and the head guide axis on the head base. (① → ③)

(2) As the head base moves back, the pressure against the pinch roller assembly (F) (pinch roller assembly (R)) and the engagement of the play gear (play gear (R)) with the reel unit (F) (reel unit (R)) are released. (④ → ⑤)

(3) When the FF lever is pressed further, the FR arm assembly is turned by the cam section at the edge to operate the connected FR lever assembly. Then the FR gear is engaged with the flywheel gear section and the reel unit (F) to set the FF mode. (⑥ → ⑦)

(4) As for the REW mode, the operation in (3) is performed in the reverse direction by the REW lever to set the REW mode.

(5) The FR lock lever is turned to the lock position and set to the lock mode. (⑧)

• RELEASE OF THE FF/REW MODE

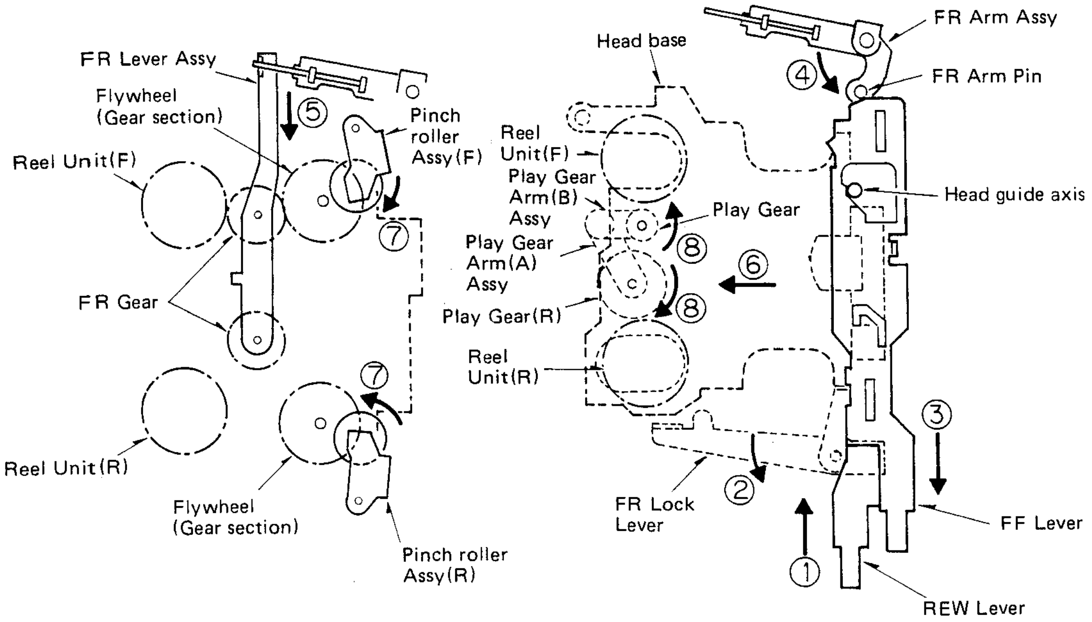

FR Lever Assy
Flywheel
(Gear section)
Reel Unit(F)
FR Gear
Reel Unit(R)
Flywheel
(Gear section)
Pinch
roller
Assy(F)
Pinch roller
Assy(R)
⑤
⑦
⑦
Head base
Reel
Unit(F)
Play Gear
Arm(B)
Assy
Play Gear
Arm(A)
Assy
Play Gear(R)
Reel
Unit(R)
Play Gear
⑧
⑧
⑥
FR Lock
Lever
②
①
④
FR Arm Assy
FR Arm Pin
Head guide axis
③
FF Lever
REW Lever

Fig. 3

(1) When the REW lever is pressed in the FF mode, the FF lever is released and starts to return following the rotation of the FR lock lever. Therefore, the FR arm assembly and the FR lever assembly return to their neutral positions while the FR gear engaged with the flywheel and the reel unit (F) is restored to the neutral position. (① → ⑤)

(2) When the FF lever has returned completely, the head base advances to the PLAY position. Therefore, the pressure against the pinch roller (F or R) and the engagement of the play gear (or play gear (R)) with the reel unit (F) or (R) are released to set the PLAY mode. (⑥ → ⑧)

(3) During the REW mode, when the FF lever is pressed, operation (1) is performed in the reverse direction and then the same operation as described above sets the PLAY mode.

• PROGRAM SELECTOR

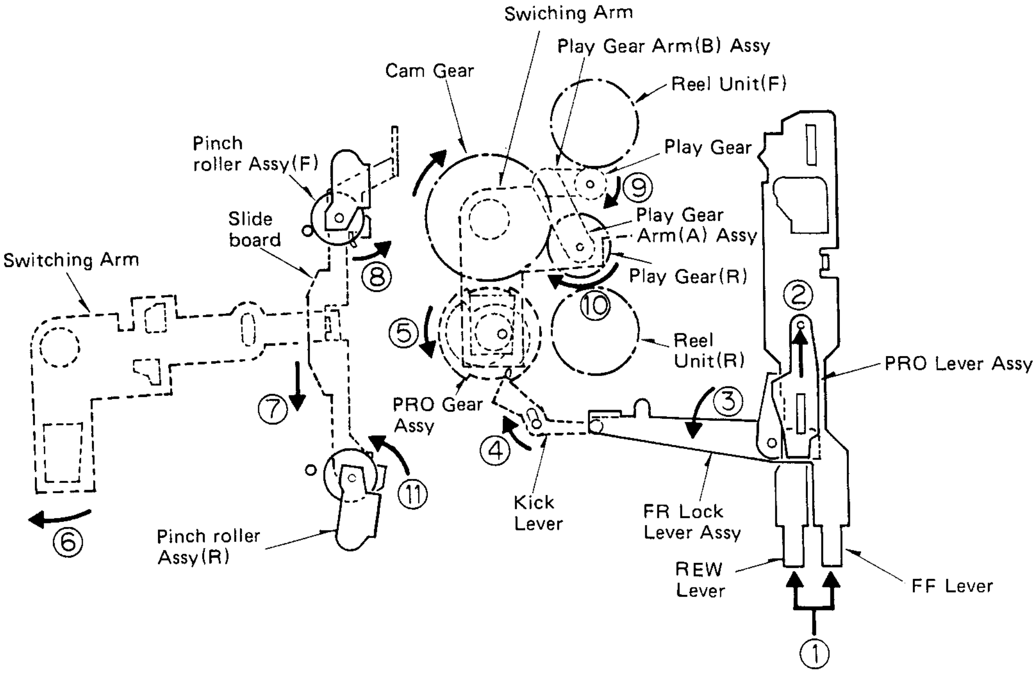

Swiching Arm
Play Gear Arm(B) Assy
Cam Gear
Reel Unit(F)
Pinch roller Assy(F)
Play Gear
⑨
Slide board
Play Gear Arm(A) Assy
Switching Arm
⑧
Play Gear(R)
②
⑩
⑤
Reel Unit(R)
PRO Lever Assy
⑦
PRO Gear Assy
③
④
⑪
Kick Lever
FR Lock Lever Assy
⑥
Pinch roller Assy(R)
REW Lever
FF Lever
①

Fig. 4

(1) When the FF lever and the REW lever are pressed simultaneously, the PRO lever assembly advances and the FR lock lever is turned. (① → ③)

(2) The kick lever is turned by the rotation of the FR lock lever and the PRO gear assembly is kicked. After being kicked, the PRO gear assembly is turned by half a turn by the cam gear which turns all the time. (④ → ⑤)

(3) The turning of the PRO gear assembly turns the switching arm and switches the FR position on the slide board connected to it. This operation switches the engagement of the reel unit (F) and (R) with the play gear and play gear (R) as well as switching the pressure against the pinch roller assembly (F) and (R) to end the PROGRAM operation. (⑥ → ⑪)

• TAPE END

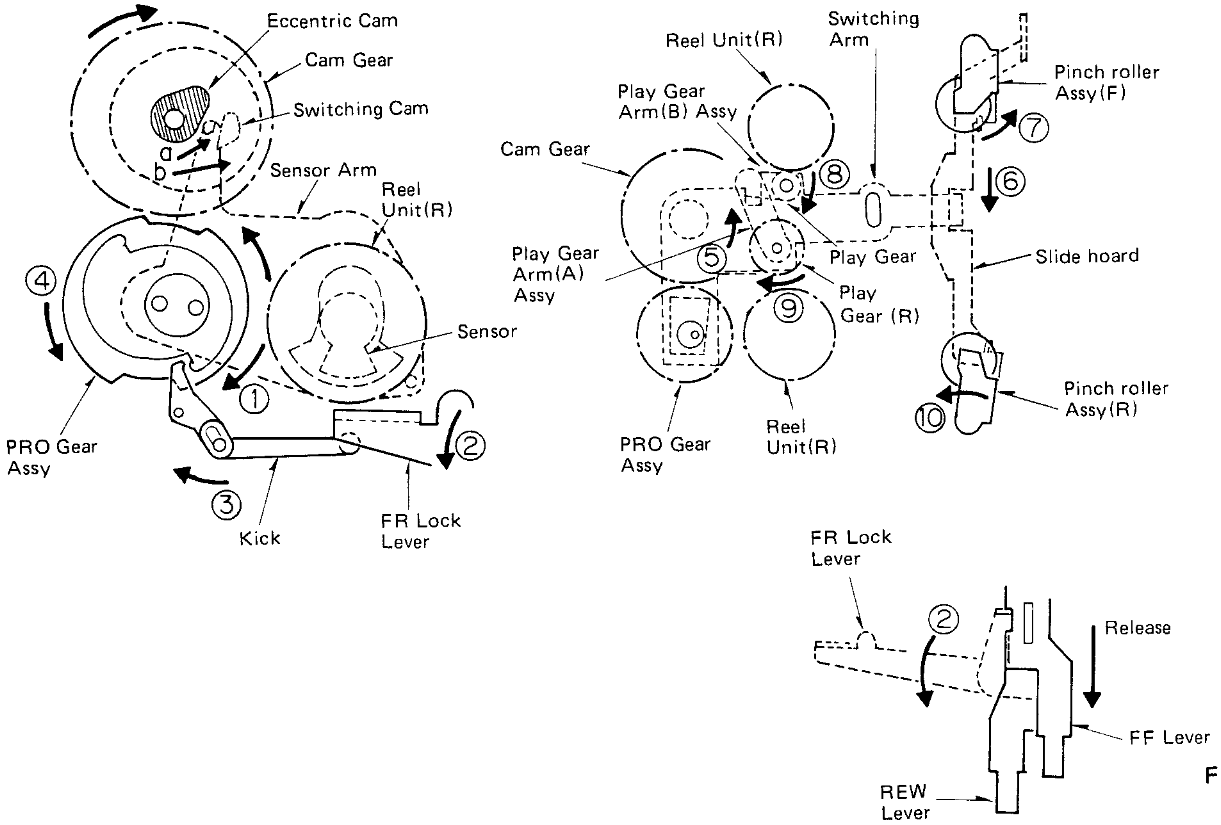

Eccentric Cam
Cam Gear
Switching Cam
a
b
Sensor Arm
Reel Unit(R)
④
①
Sensor
PRO Gear Assy
②
③
Kick
FR Lock Lever
Reel Unit(R)
Switching Arm
Play Gear Arm(B) Assy
Cam Gear
⑧
Pinch roller Assy(F)
⑦
⑥
Play Gear Arm(A) Assy
⑤
Play Gear
Slide hoard
⑨
Play Gear (R)
Pinch roller Assy(R)
⑩
PRO Gear Assy
Reel Unit(R)
FR Lock Lever
②
Release
FF Lever
REW Lever

Fig. 5

(1) Play end

i) During playback, the sensor arm performs oscillating movements along locus a because of the eccentric cam turned by the cam gear and the rotating power of the sensor which applies pressure torque to the reel unit (R) via a spring.

ii) When reel unit (R) stops at the end of play, no rotating power is applied to the sensor arm from the sensor and it protrudes outside the switching cam (following locus b) then turns clockwise with a large stroke to turn the FR lock lever and kick lever and kick the PRO gear assembly. (① → ③)

iii) After the PRO gear has been kicked, it engages with the cam gear and rotates for half a turn to switch the program. The following operations are the same as in (3) in item 4. (④ → ⑩)

(2) FF/REW end

i) The operations for ending and switching are the same as in playback.

ii) When the FR lock lever is turned by the switching operation, the locking of the FF lever is released and the play mode is engaged by the same operation as that in item 3 (releasing the FF/REW mode).

- **EJECT**

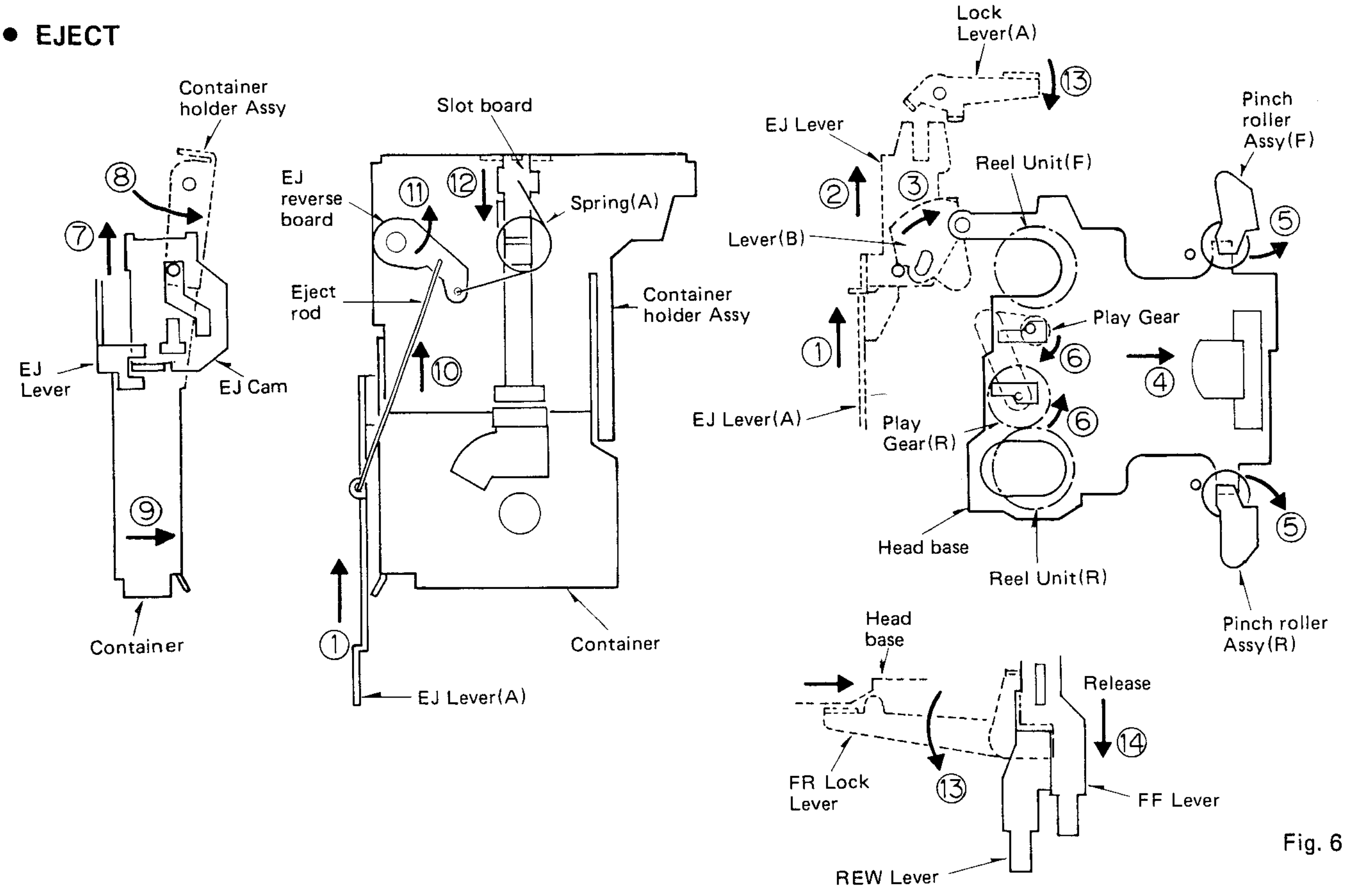

Container holder Assy
⑧
⑦
EJ Lever
EJ Cam
⑨
Container
Slot board
EJ reverse board
⑪
⑫
Spring(A)
Eject rod
⑩
Container holder Assy
①
Container
EJ Lever(A)
Lock Lever(A)
⑬
EJ Lever
②
③
Reel Unit(F)
Pinch roller Assy(F)
⑤
Lever(B)
Play Gear
⑥
④
①
EJ Lever(A)
Play Gear(R)
⑥
⑤
Head base
Reel Unit(R)
Pinch roller Assy(R)
Head base
Release
⑭
FR Lock Lever
⑬
FF Lever
REW Lever

Fig. 6

(1) When the EJ lever (A) is pressed, the EJ lever is pushed forward and the head base assembly is pushed back via the lever (B). As the head base moves back, the engagement of the play gear (or play gear (R)) and the pressure against the pinch roller assembly (F or R) are released. (① → ⑥)

(2) When the EJ lever (A) is pressed further, the container holder assembly and the container rise up to the EJECT position by action of the cam section of the EJ cam connected to the EJ lever. (⑦ → ⑨)

(3) In this case, the reverse spring that has been pressed via the reverse board is reversed by the eject rod connected to the EJ lever (A). As a result, the slot board moves to the eject side to eject the cassette tape and the container lock lever turns to lock the EJ lever. (⑩ → ⑬)

(4) Concerning EJECT in the FF/REW mode, the FR lock lever is turned by the backward movement of the head base to release the lock of the FF/REW lever. As a result, the operation of item 3 (release of the FF/REW mode) is performed in addition to the above three operations.

5. MECHANISM DESCRIPTION (CZX4023)

- **PLAY**

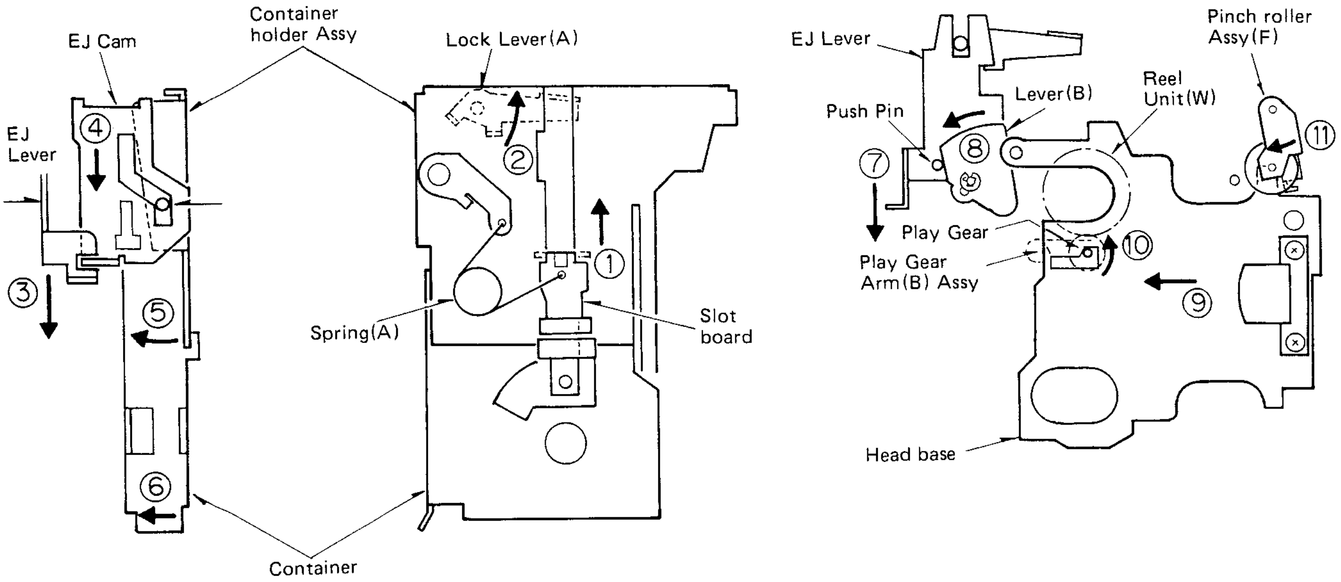

EJ Cam
Container holder Assy
Lock Lever(A)
EJ Lever
④
③
⑤
⑥
②
①
Spring(A)
Slot board
Container
EJ Lever
Push Pin
Lever(B)
Reel Unit(W)
Pinch roller Assy(F)
⑦
⑧
⑪
Play Gear
Play Gear Arm(B) Assy
⑩
⑨
Head base

Fig. 7

(1) When inserting a cassette tape, the slot board is taken in by the action of the spring (A) and when the lock lever (A) is kicked, the lock of the EJ lever is released. (① → ②)

(2) The EJ lever lets the connected EJ cam operate and the container holder assembly is turned downward by the sliding movement of the cam section and the container axis. The cassette tape held in the container is moved to the PLAY position. (③ → ⑥)

(3) Further, as the EJ lever moves, the head base held through the lever (B) advances to the PLAY position. At this time, the play gear and reel unit (W) areengaged and the pinch roller assembly (F) is been pushed against the capstan, then the PLAY mode is engaged. (⑦ → ⑪)

• FF/REW

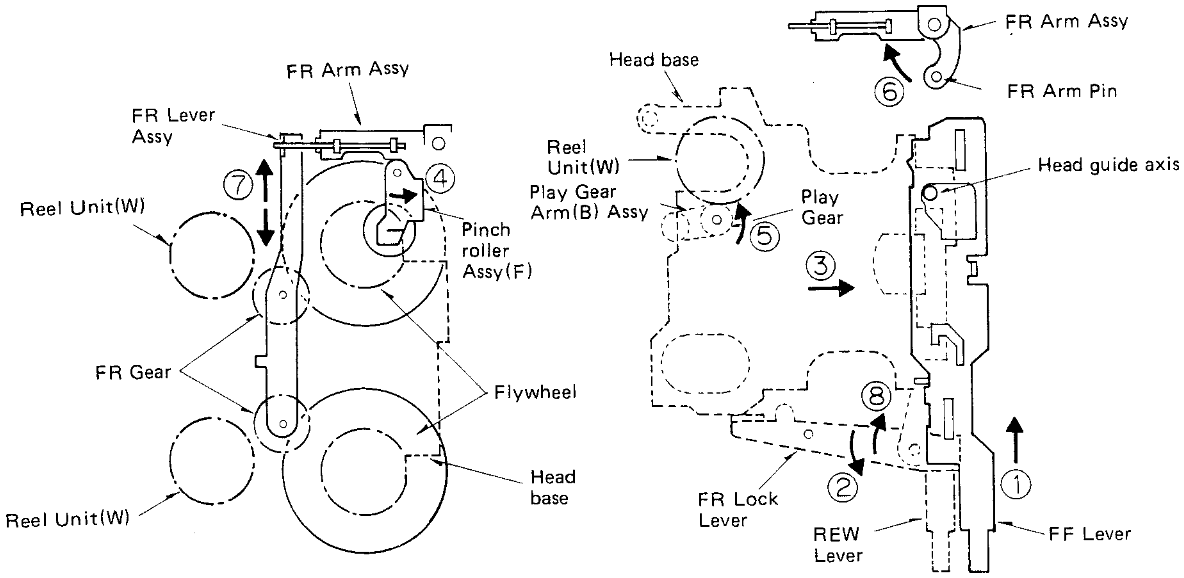

FR Arm Assy
FR Lever Assy
Reel Unit(W)
⑦
④
Pinch roller Assy(F)
FR Gear
Flywheel
Head base
Reel Unit(W)
Head base
Reel Unit(W)
Play Gear Arm(B) Assy
Play Gear
⑤
③
⑥
FR Arm Assy
FR Arm Pin
Head guide axis
⑧
②
①
FR Lock Lever
REW Lever
FF Lever

Fig. 8

(1) When the FF lever is pressed in, the FR lock lever is turned then the head base moves back by the sliding movement of the cam section of the FF lever and the head guide axis on the head base. (① → ③)

(2) As the head base moves back, the pressure against the pinch roller assembly (F) and the engagement of the play gear the reel unit (W) are released. (④ → ⑤)

(3) When the FF lever is pressed further, the FR arm assembly is turned by the cam section at the edge to operate the connected FR lever assembly. Then the FR gear is engaged with the flywheel gear section and the reel unit (W) to set the FF mode. (⑥ → ⑦)

(4) As for the REW mode, the operation in (3) is performed in the reverse direction by the REW lever to set the REW mode.

(5) The FR lock lever is turned to the lock position and set to the lock mode. (⑧)

• RELEASE OF THE FF/REW MODE

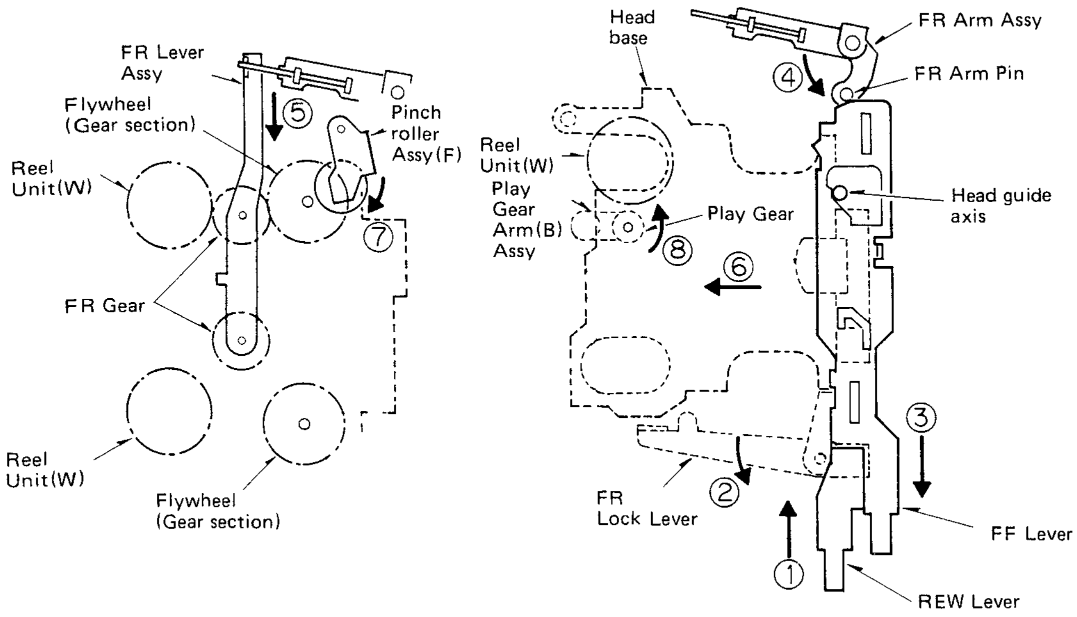

FR Lever Assy
Flywheel (Gear section)
Reel Unit(W)
⑤
Pinch roller Assy(F)
⑦
FR Gear
Reel Unit(W)
Flywheel (Gear section)
Head base
Reel Unit(W)
Play Gear Arm(B) Assy
Play Gear
⑧
⑥
④
FR Arm Assy
FR Arm Pin
Head guide axis
③
FR Lock Lever
②
①
FF Lever
REW Lever

Fig. 9

(1) When the REW lever is pressed in the FF mode, the FF lever is released and starts to return following the rotation of the FR lock lever. Therefore, the FR arm assembly and the FR lever assembly return to their neutral positions while the FR gear engaged with the flywheel and the reel unit (W) is restored to the neutral position. (① → ⑤)

(2) When the FF lever has returned completely, the head base advances to the PLAY position. Therefore, the pressure against the pinch roller assembly (F) and the engagement of the play gear with the reel unit (W) are released to set the PLAY mode. (⑥ → ⑧)

(3) During the REW mode, when the FF lever is pressed, operation (1) is performed in the reverse direction and then the same operation as described above sets the PLAY mode.

• TAPE END

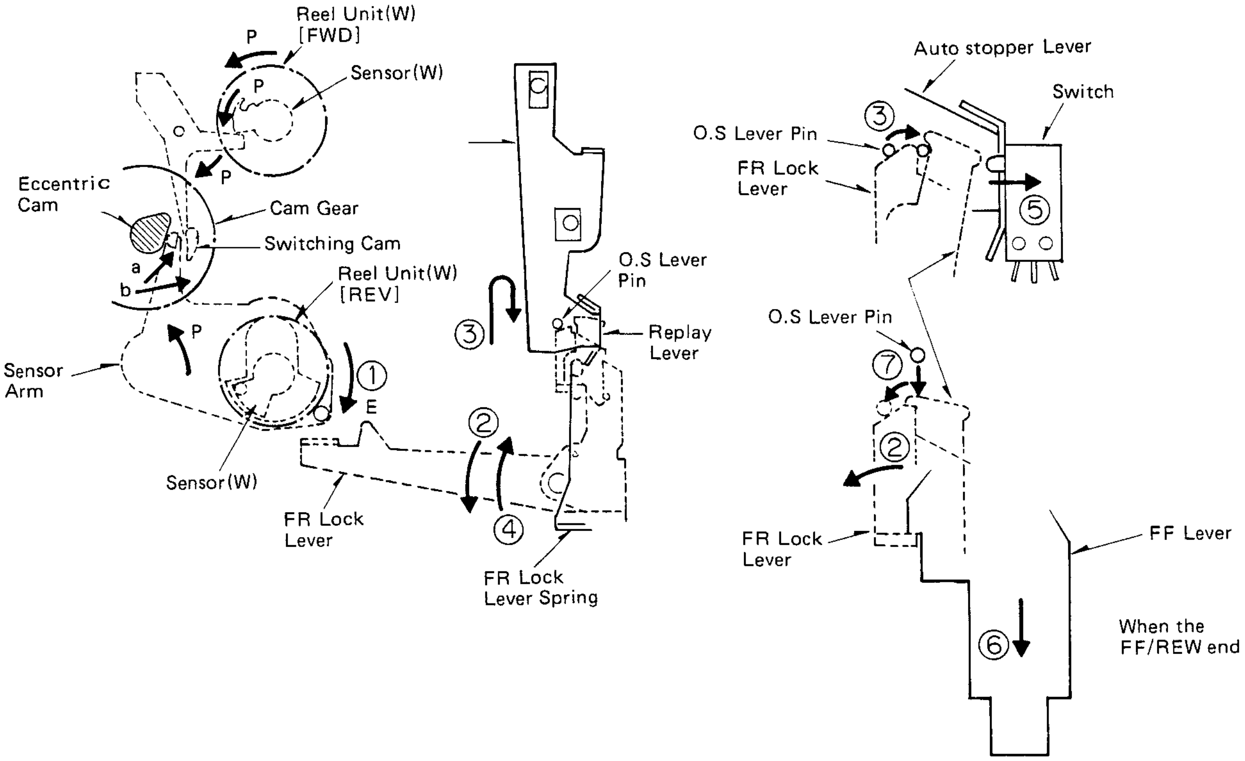

Reel Unit(W)
[FWD]
P
P
Sensor(W)
P
Eccentric Cam
Cam Gear
Switching Cam
a
b
Reel Unit(W)
[REV]
P
Sensor Arm
①
E
Sensor(W)
FR Lock Lever
③
②
④
FR Lock Lever Spring
O.S Lever Pin
Replay Lever
Auto stopper Lever
Switch
③
O.S Lever Pin
FR Lock Lever
⑤
O.S Lever Pin
⑦
②
FR Lock Lever
FF Lever
⑥
When the FF/REW end

Fig. 10

(1) Play end

(i) During play, sensor (W) rotation is maintained by bonded torque via a spring from the reel unit (W) operating in the FWD mode. Through sensor arm (B), the tip of the sensor remains constantly in Route 'a' and oscillating movement continues. (-P → movement)

(ii) When the end of the reel is reached, sensor (W) movement stops. This causes the sensor arm to enter Route 'b' and a switching cam triggers a wide clockwise rotation (← E-). (①)

(iii) When the FR lock lever rotates as a result of sensor arm action, a O.S lever pin located above the auto stop lever moves into position between the replay lever and the FR lock lever. The action of the FR lock lever activates a switch which then stops the motor. (② → ⑤)

(2) FF end

(i) End detection is the same as that during play.

(ii) When the end of the reel is reached and the sensor arm makes the wide → E- rotation, the FR lock lever rotates and the FF lever is released. The O.S lever pin moving into position at the periphery of the replay lever puts the unit into play mode. (②, ⑥ → ⑦)

(iii) Once in the play mode, the tape end operation is performed again and on the basis of operations(1) (ii) and (iii), the motor stops.

(3) REW end

(i) During REW, the reel unit (W) on the side being rewound and the sensor (W) act directly on the sensor arm, causing it to enter routs 'a'.

(ii) When the end of the reel is reached, exactly as previously described, the sensor arm moves into route 'b', the sensor arm makes a wide → E- rotation, operation (2) (ii) is performed and the unit is put into the play mode.

• EJECT

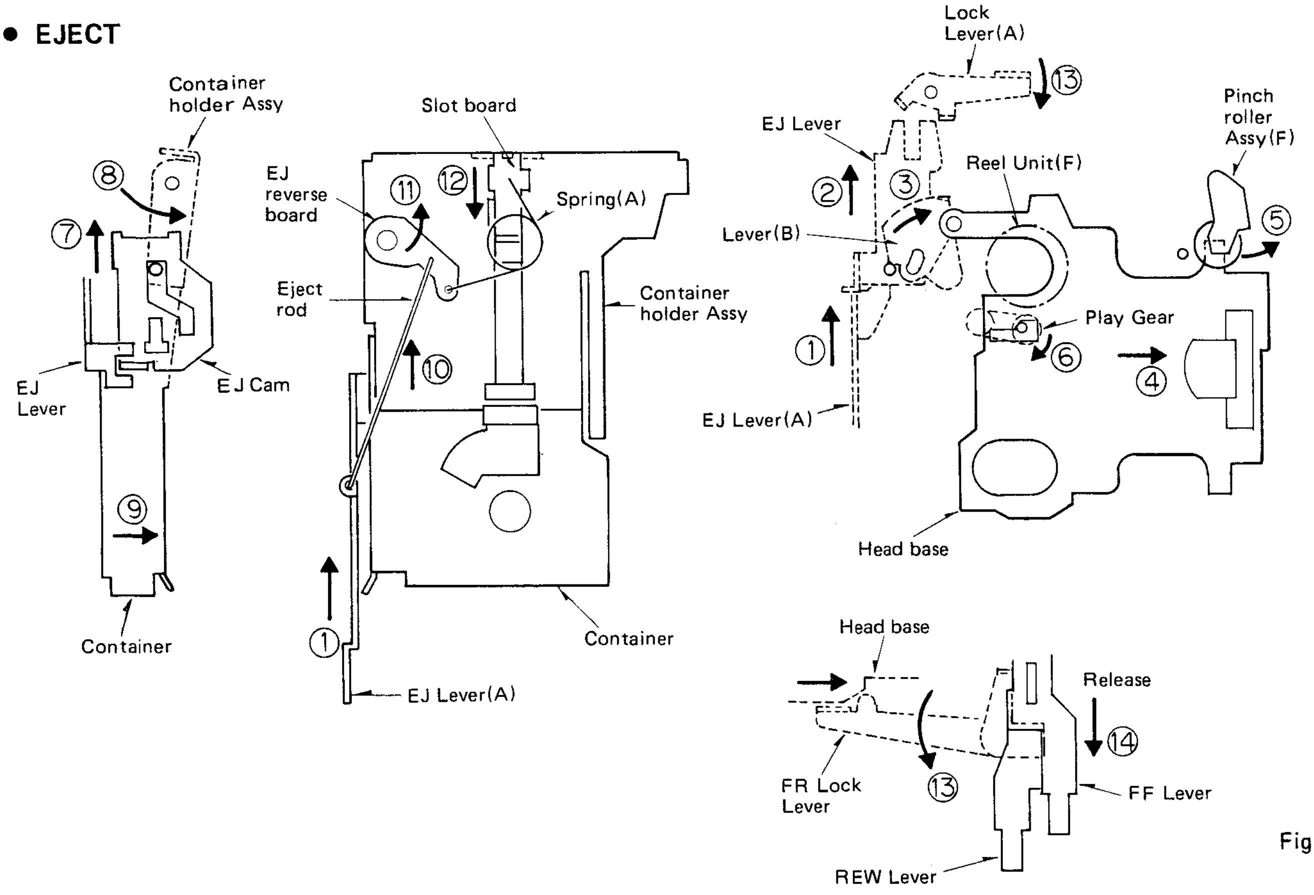

Container holder Assy
⑧
⑦
EJ Lever
EJ Cam
⑨
Container
Slot board
EJ reverse board
⑪
⑫
Spring(A)
Eject rod
Container holder Assy
⑩
①
EJ Lever(A)
Container
Lock Lever(A)
⑬
EJ Lever
Pinch roller Assy(F)
②
③
Reel Unit(F)
⑤
Lever(B)
Play Gear
⑥
④
①
EJ Lever(A)
Head base
Head base
Release
⑭
FR Lock Lever
⑬
FF Lever
REW Lever

Fig. 11

(1) When the EJ lever (A) is pressed, the EJ lever is pushed forward and the head base assembly is pushed back via the lever (B). As the head base moves back, the engagement of the play gear and the pressure against the pinch roller assembly (F) are released. (① → ⑥)

(2) When the EJ lever (A) is pressed further, the container holder assembly and the container rise up to the EJECT position by action of the cam section of the EJ cam connected to the EJ lever. (⑦ → ⑨)

(3) In this case, the spring (A) that has been pressed via the reverse board is reversed by the eject rod connected to the EJ lever (A). As a result, the slot board moves to the eject side to eject the cassette tape and the container lock lever turns to lock the EJ lever. (⑩ → ⑬)

(4) Concerning EJECT in the FF/REW mode, the FR lock lever is turned by the backward movement of the head base to release the lock of the FF/REW lever. As a result, the operation of item 3 (release of the FF/REW mode) is performed in addition to the above three operations.

6. DISASSEMBLY

Removing the Pinch Roller Assy

1. Remove the two screws(A) and remove the sub chassis (A, B).
2. Remove the washer and remove the Arm.
3. Remove the E type washer(A) and remove the Roller unit(F).
4. Remove the E type washer(B) and remove the Roller unit(R).

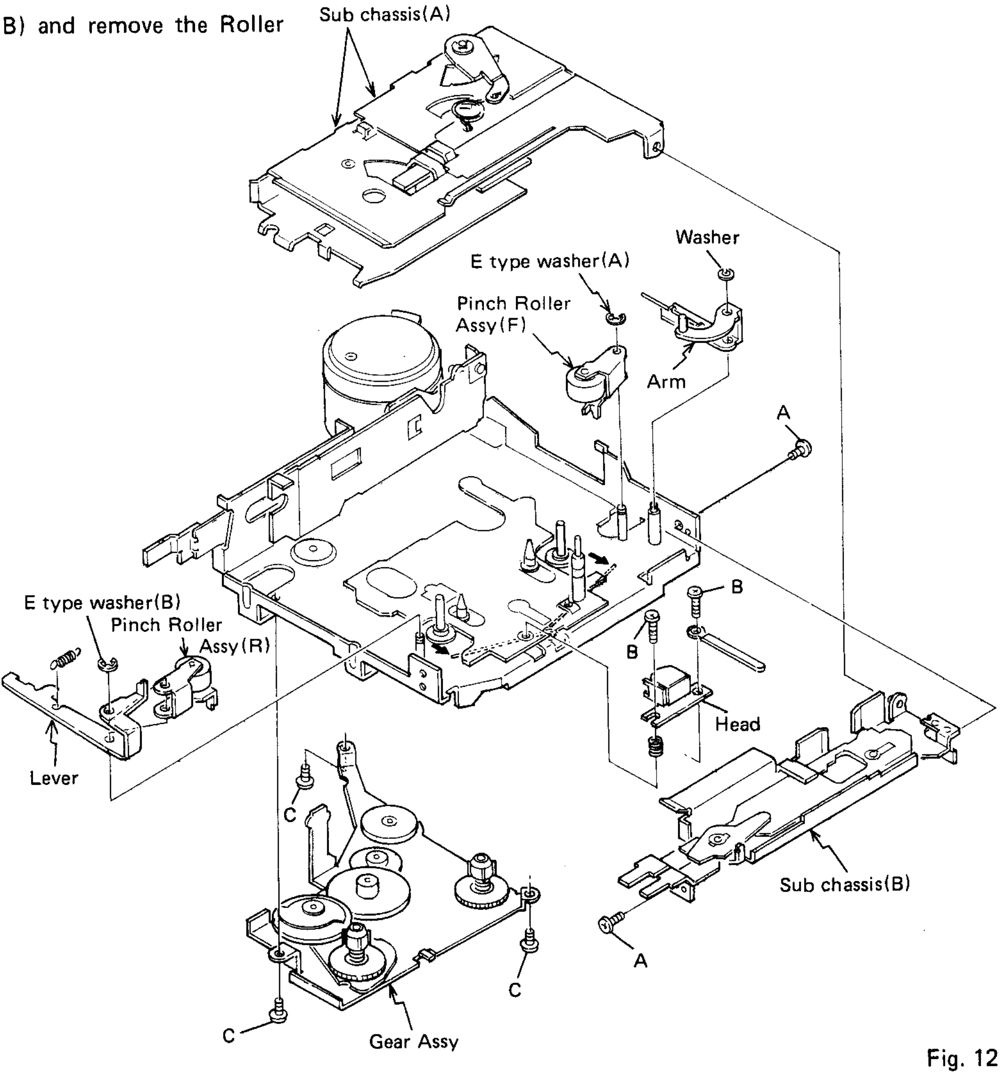

Sub chassis(A)
Washer
E type washer(A)
Pinch Roller Assy(F)
Arm
A
B
B
Head
E type washer(B)
Pinch Roller Assy(R)
Lever
C
C
C
Gear Assy
Sub chassis(B)
A

Fig. 12

Removing the Head

1. Remove the two screws(B).

Removing the Gear Assy

1. Remove the three screws(C).

7. ADJUSTMENT

NOTICE:
Select C1 so that total capacity of 80pF is attained from the direction of the receiver jack.
Z: Output impedance of SSG.

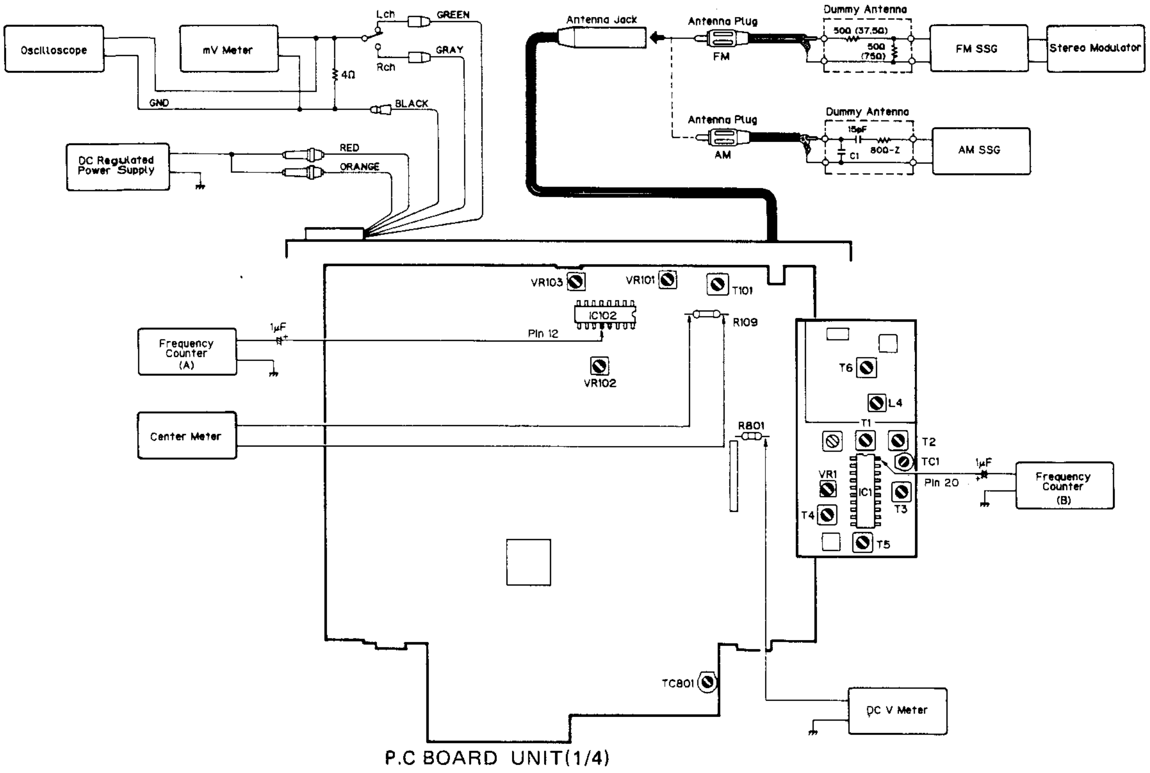

Oscilloscope
mV Meter
Lch
GREEN
GRAY
Rch
4Ω
GND
BLACK
DC Regulated Power Supply
RED
ORANGE
Antenna Jack
Antenna Plug
FM
Dummy Antenna
50Ω (37.5Ω)
50Ω (75Ω)
FM SSG
Stereo Modulator
Antenna Plug
AM
Dummy Antenna
15pF
C1
80Ω-Z
AM SSG
VR103
VR101
T101
IC102
Pin 12
R109
1μF
Frequency Counter (A)
VR102
Center Meter
R801
T6
L4
T1
T2
TC1
VR1
IC1
T3
T4
T5
Pin 20
1μF
Frequency Counter (B)
TC801
DC V Meter
P.C BOARD UNIT(1/4)

Fig. 13

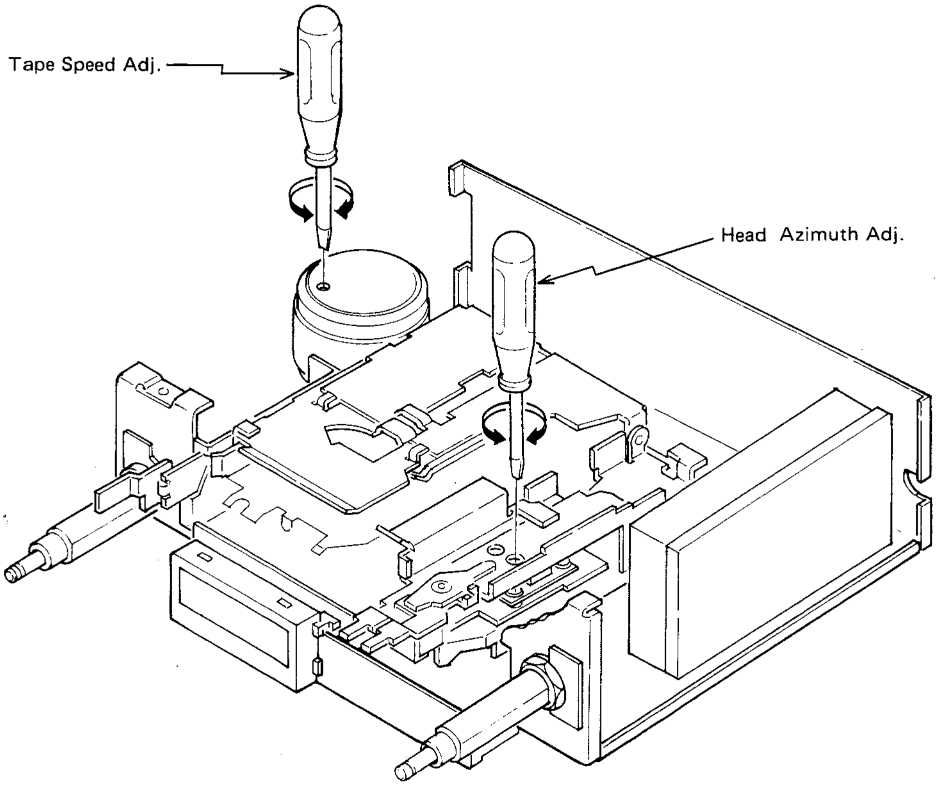

Tape Speed Adj.
Head Azimuth Adj.

Fig. 14

7.1 TAPE SPEED ADJUSTMENT

No.	Cassette Tape	Adjusting Point	Adjustment Method
1	STD-301 (3 kHz, −10 dB)	Shown in Fig. 14	Frequency Counter: 3,030 Hz ±60 Hz

7.2 HEAD AZIMUTH ADJUSTMENT

No.	Cassette Tape	Adjusting Point	Adjustment Method
1	STD-341A (10 kHz, −20 dB)	Shown in Fig. 14	Output: Maximum

7.3 FM IF ADJUSTMENT

- **Connection Diagram (Shown in Fig. 13)**
- **To Adjust**

1. Apply a signal of 98.1 MHz, 400 Hz, 100% modulation and 60 dB (μV) from the FM SSG and tune 98.1 MHz.
2. Adjust T101 to make the center meter show 0.

7.4 FM MPX ADJUSTMENT

- **Connection Diagram (Shown in Fig. 13)**
- **To Adjust**

1. Obtain non-modulation signal by setting SSG output at 60 dB (μV) 98.1 MHz. Adjust VR102 so that the frequency counter (A) indicates 19 KHz ±20 Hz.
2. Obtain stereo modulation signal by setting SSG output at 60 dB (μV). Adjust VR103 to secure maximum separation.

7.5 FM TRACKING ADJUSTMENT

- **Connection Diagram (Shown in Fig. 13)**
- **To Adjust (ES Model)**

Frequency of FM SSG	Displayed Frequency	Adjusting Point	DC V Meter	mV Meter
1.	108 MHz	L4	7.5 ±0.2 V	
2.	87.5 MHz		2.0 ±0.6 V check	
3. 98.1 MHz (400 Hz, 100% modulation) output level 5-10 dB (μV).	98.1 MHz	T6		Maximum output

- **To Adjust (UC, US Model)**

Frequency of FM SSG	Displayed Frequency	Adjusting Point	DC V Meter	mV Meter
1.	107.9 MHz	L4	7.5 ±0.2 V	
2.	87.9 MHz		2.0 ±0.6 V check	
3. 98.1 MHz (400 Hz, 100% modulation) output level 5-10 dB (μV).	98.1 MHz	T6		Maximum output

7.6 FM SEEK SENSITIVITY ADJUSTMENT

- **Connection Diagram (Shown in Fig. 13)**

1. Apply a 98.1 MHz, 400 Hz, 30% modulation signal from FM SSG to perform auto search. (Tuning buttons simultaneously). Then adjust VR101 so that it stops at 25 ±5 dB (μV).

7.7 AM TRACKING ADJUSTMENT

- **Connection Diagram (Shown in Fig. 13)**
- **To Adjust (ES Model)**

Frequency of AM SSG	Displayed Frequency	Adjusting Point	DC V Meter	mV Meter
1.	531 kHz	T3	0.8 ±0.1 V	
2.	1,602 kHz	TC1	7.9 ±0.1 V	
3. 603 kHz (400 Hz, 30% modulation) output level 25 dB (μV)	603 kHz	T1, T2, T4, T5		Maximum output
4. 603 kHz 999 kHz (400 Hz, 30% modulation) 1,395 kHz output level 35 dB (μV)	603 kHz 999 kHz 1,395 kHz	For Confirmation Only		The difference between the maximum and minimum output levels at 603 kHz, 999 kHz, and 1,395 kHz must be 6 dB or less.

- **To Adjust (UC, US Model)**

Frequency of AM SSG	Displayed Frequency	Adjusting Point	DC V Meter	mV Meter
1.	530 kHz	T3	0.8 ±0.1 V	
2.	1,620 kHz	TC1	7.9 ±0.1 V	
3. 600 kHz (400 Hz, 30% modulation) output level 25 dB (μV)	600 kHz	T1, T2, T4, T5		Maximum output
4. 600 kHz 1,000 kHz (400 Hz, 30% modulation) 1,400 kHz output level 35 dB (μV)	600 kHz 1,000 kHz 1,400 kHz	For Confirmation Only		The difference between the maximum and minimum output levels at 600 kHz, 1,000 kHz, and 1,400 kHz must be 6 dB or less.

7.8 AM SEEK SENSITIVITY ADJUSTMENT

- **Connection Diagram (Shown in Fig. 13)**
- **To Adjust**

1. Apply a 1,000 kHz, 400 Hz, 30% modulation signal from AM SSG to perform auto search (Tuning buttons simultaneously).
   Then adjust VR1 so that it stops at 25 ±3 dB (μV).

7.9 REFERENCE OSCILLATION FREQUENCY ADJUSTMENT

- **Connector Diagram (shown in Fig. 13)**
- **To Adjust (UC, US Model)**

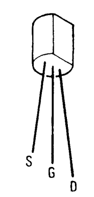
1. Set the AM position.
2. Set the LCD display to 531 kHz.
3. Adjust TC801 so that the frequency counter (B) display becomes 981 kHz ± 5 Hz.

- **To Adjust (ES Model)**

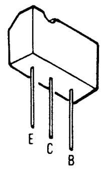
1. Set the AM position.
2. Set the LCD display to 530 kHz.
3. Adjust TC801 so that the frequency counter (B) display becomes 980 kHz ± 5 Hz.

- **ICs and Transistors**

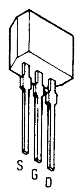
2SJ103
2SK246



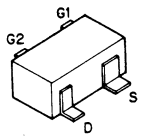
2SA1559



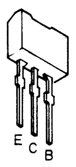
2SK494



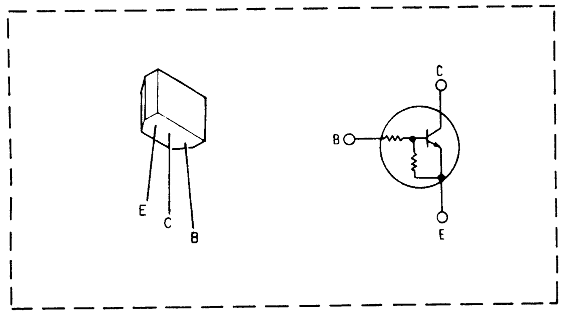
3SK126



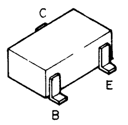
2SD1858
2SD1920
2SC4038



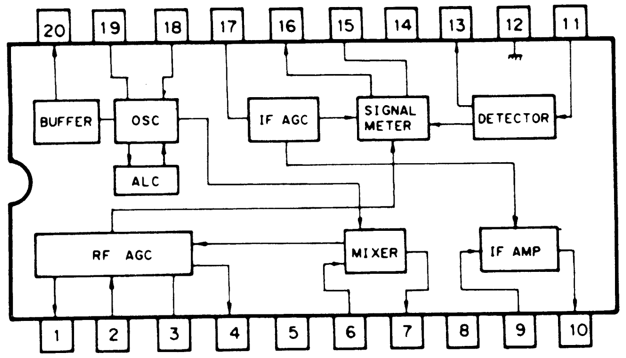
DTC114YS



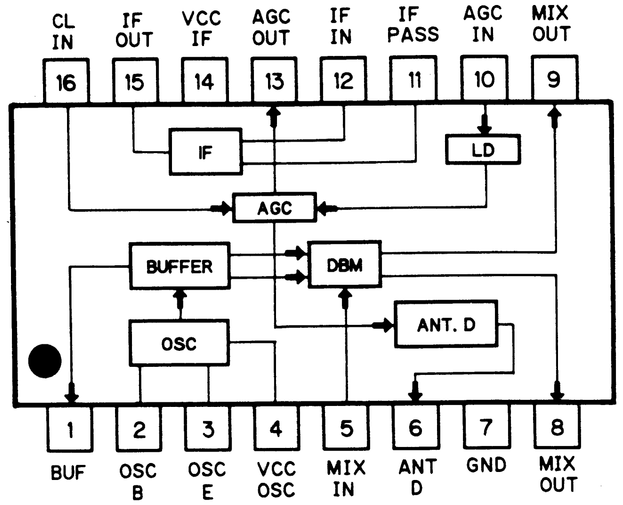
2SC2812



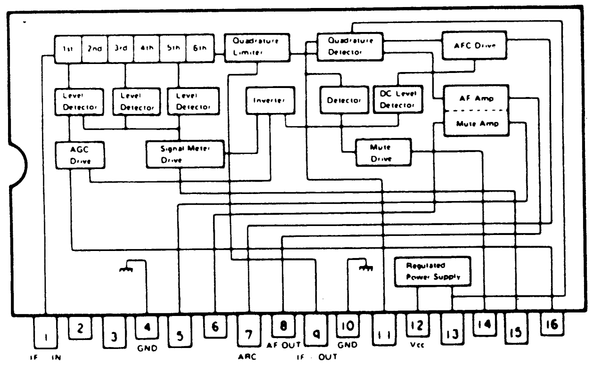
IC1: LA1135


20
19
18
17
16
15
14
13
12
11
BUFFER
OSC
ALC
IF AGC
SIGNAL METER
DETECTOR
RF AGC
MIXER
IF AMP
1
2
3
4
5
6
7
8
9
10

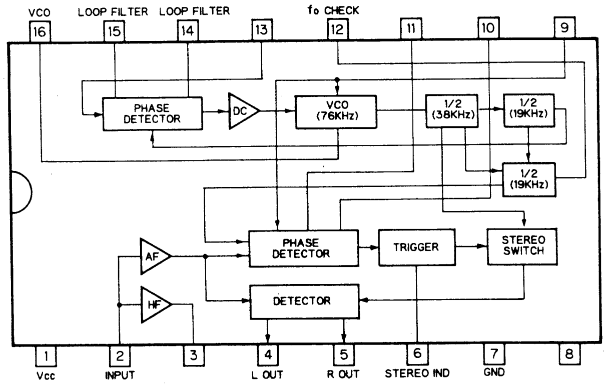
IC2: LA1175


CL IN
IF OUT
VCC IF
AGC OUT
IF IN
IF PASS
AGC IN
MIX OUT
16
15
14
13
12
11
10
9
IF
LD
AGC
BUFFER
DBM
OSC
ANT. D
1
2
3
4
5
6
7
8
BUF
OSC B
OSC E
VCC OSC
MIX IN
ANT D
GND
MIX OUT

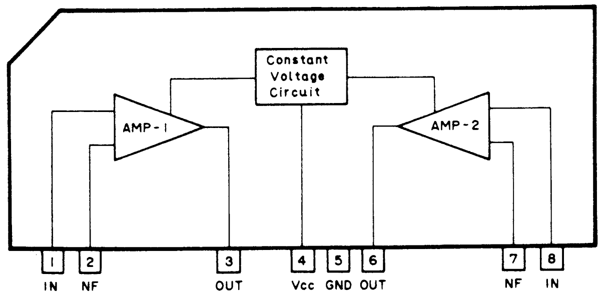
IC101: LA1140B


1st
2nd
3rd
4th
5th
6th
Quadrature Limiter
Quadrature Detector
AFC Drive
Level Detector
Level Detector
Level Detector
Inverter
Detector
DC Level Detector
AF Amp
Mute Amp
AGC Drive
Signal Meter Drive
Mute Drive
Regulated Power Supply
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
IF IN
GND
AFC
AF OUT
GND
IF OUT
Vcc

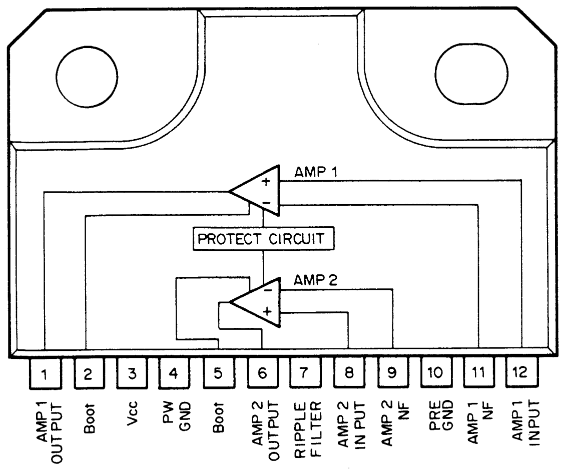
IC102: BA1332


VCO
LOOP FILTER
LOOP FILTER
fo CHECK
16
15
14
13
12
11
10
9
PHASE DETECTOR
DC
VCO (76KHz)
1/2 (38KHz)
1/2 (19KHz)
1/2 (19KHz)
AF
HF
PHASE DETECTOR
TRIGGER
STEREO SWITCH
DETECTOR
1
2
3
4
5
6
7
8
Vcc
INPUT
L OUT
R OUT
STEREO IND
GND

IC301: LA3161

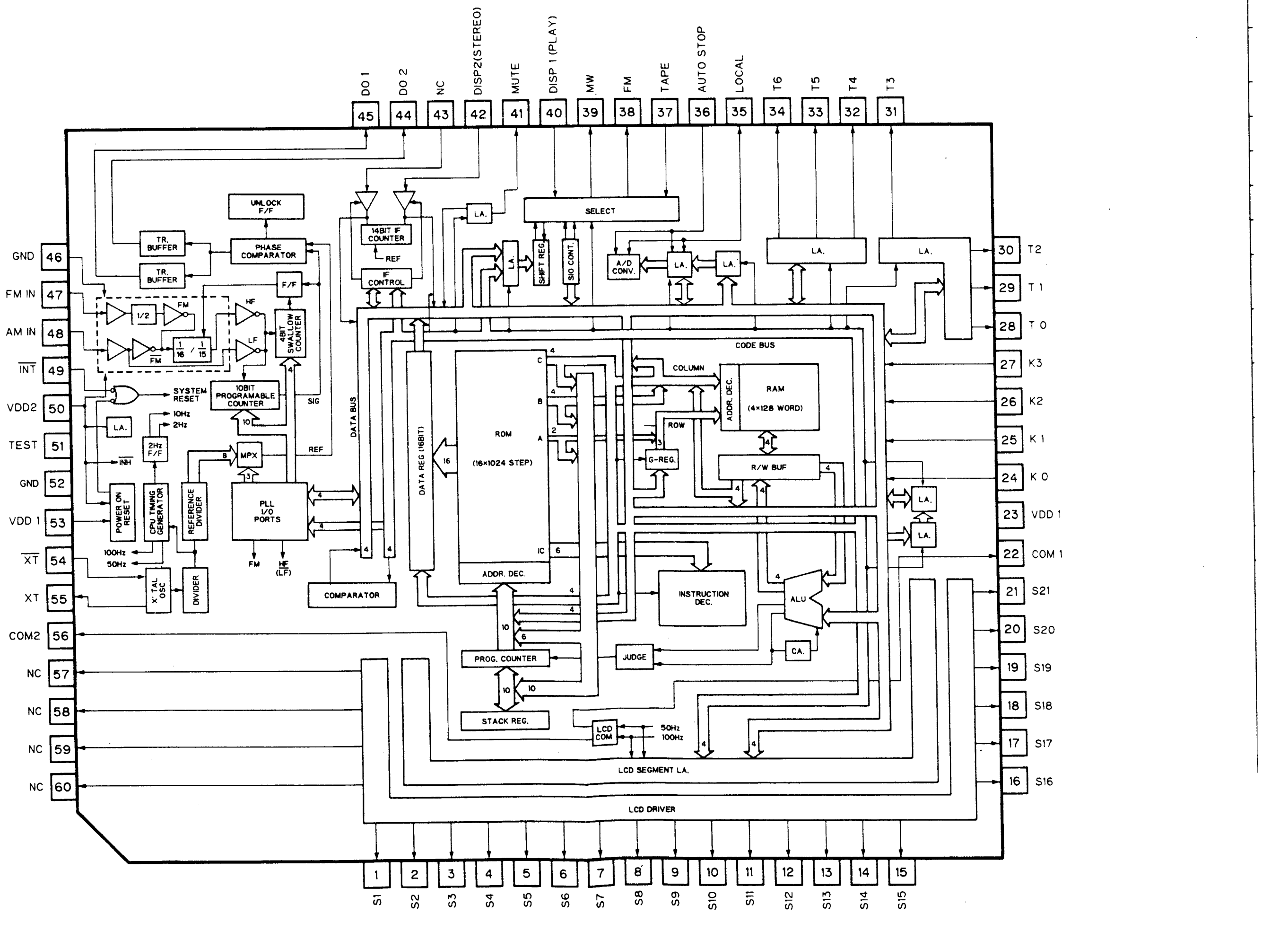

Constant Voltage Circuit
AMP-1
AMP-2
1
2
3
4
5
6
7
8
IN
NF
OUT
Vcc
GND
OUT
NF
IN

IC501: TA7281P

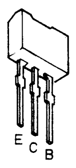

AMP 1
PROTECT CIRCUIT
AMP 2
1
2
3
4
5
6
7
8
9
10
11
12
AMP 1 OUTPUT
Boot
Vcc
PW GND
Boot
AMP 2 OUTPUT
RIPPLE FILTER
AMP 2 IN PUT
AMP 2 NF
PRE GND
AMP 1 NF
AMP 1 INPUT

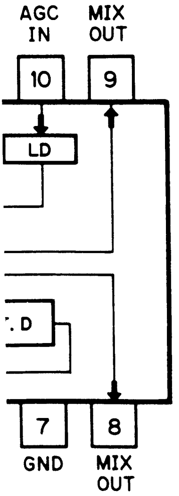
*IC801: TC9304F-013
TC9304F-025

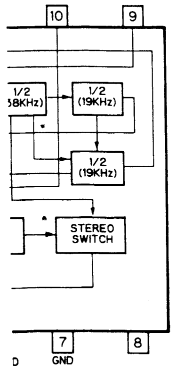
*IC's marked by * are MOS type.*
Be careful in handing them because they are very liable to be damaged by electrostatic induction.


DO 1
DO 2
NC
DISP2(STEREO)
MUTE
DISP 1 (PLAY)
MW
FM
TAPE
AUTO STOP
LOCAL
T6
T5
T4
T3
45
44
43
42
41
40
39
38
37
36
35
34
33
32
31
GND 46
FM IN 47
AM IN 48
INT 49
VDD2 50
TEST 51
GND 52
VDD 1 53
XT 54
XT 55
COM2 56
NC 57
NC 58
NC 59
NC 60
30 T2
29 T1
28 T0
27 K3
26 K2
25 K1
24 K0
23 VDD 1
22 COM 1
21 S21
20 S20
19 S19
18 S18
17 S17
16 S16
UNLOCK F/F
TR. BUFFER
TR. BUFFER
PHASE COMPARATOR
14BIT IF COUNTER
REF
IF CONTROL
SELECT
L.A.
SHIFT REG.
SIO CONT.
A/D CONV.
F/F
48IT SWALLOW COUNTER
1/2
FM
HF
LF
SYSTEM RESET
10BIT PROGRAMABLE COUNTER
10Hz
2Hz
2Hz F/F
INH
MPX
POWER ON RESET
CPU TIMING GENERATOR
REFERENCE DIVIDER
PLL I/O PORTS
100Hz
50Hz
X TAL OSC
DIVIDER
COMPARATOR
DATA BUS
DATA REG (4BIT)
ROM (16×1024 STEP)
ADDR. DEC.
COLUMN
ROW
ADDR. DEC.
RAM (4×128 WORD)
G-REG.
R/W BUF
CODE BUS
INSTRUCTION DEC.
ALU
CA.
JUDGE
PROG. COUNTER
STACK REG.
LCD COM
50Hz
100Hz
LCD SEGMENT L.A.
LCD DRIVER
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
S1
S2
S3
S4
S5
S6
S7
S8
S9
S10
S11
S12
S13
S14
S15

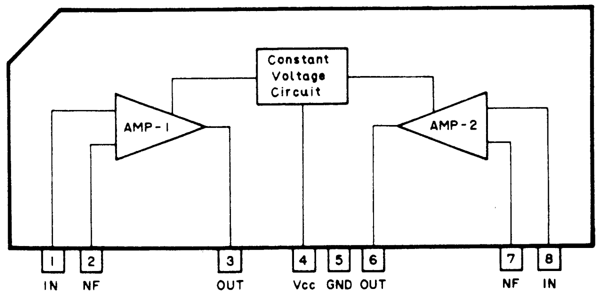
2SD1858
2SD1920
2SC4038



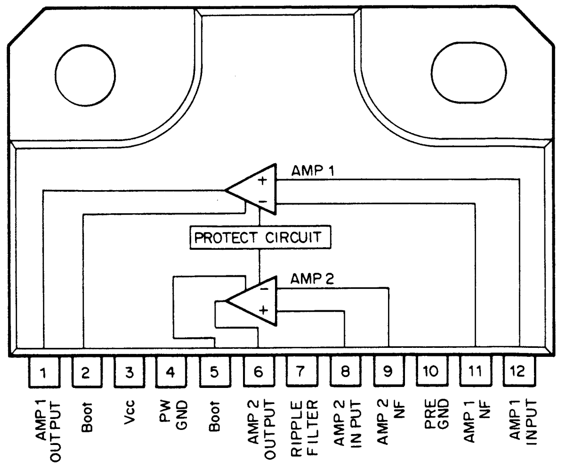

AGC IN
MIX OUT
10
9
LD
D
7
8
GND
MIX OUT


10
9
1/2 (38KHz)
1/2 (19KHz)
1/2 (19KHz)
STEREO SWITCH
7
8
D
GND

IC301: LA3161

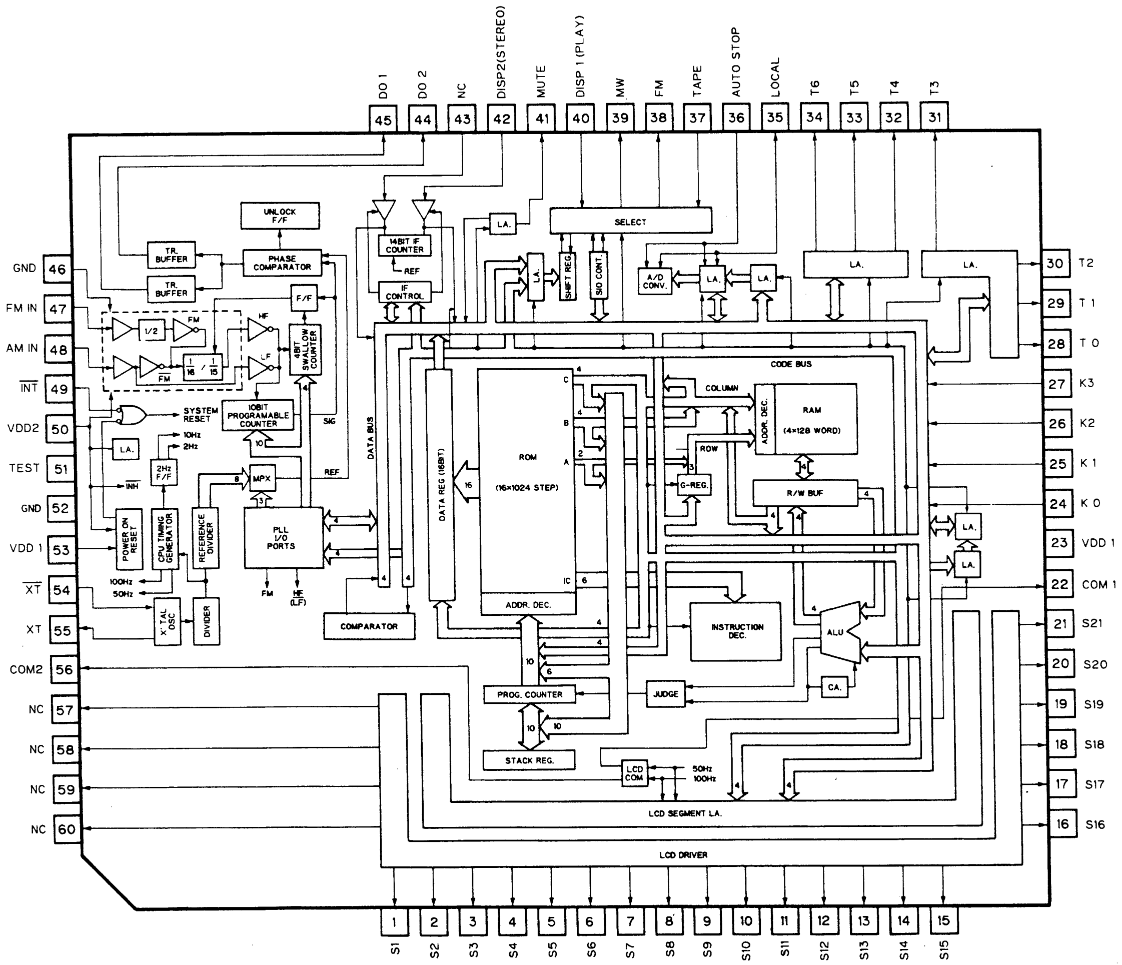

Constant Voltage Circuit
AMP-1
AMP-2
1
2
3
4
5
6
7
8
IN
NF
OUT
Vcc
GND
OUT
NF
IN

IC501: TA7281P


AMP 1
PROTECT CIRCUIT
AMP 2
1
2
3
4
5
6
7
8
9
10
11
12
AMP 1 OUTPUT
Boot
Vcc
PW GND
Boot
AMP 2 OUTPUT
RIPPLE FILTER
AMP 2 IN PUT
AMP 2 NF
PRE GND
AMP 1 NF
AMP 1 INPUT

*IC801: TC9304F-013
TC9304F-025

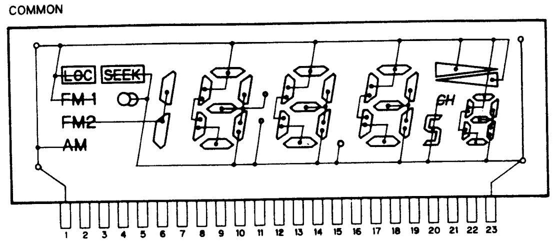
*IC's marked by * are MOS type.*
Be careful in handing them because they are very liable to be damaged by electrostatic induction.

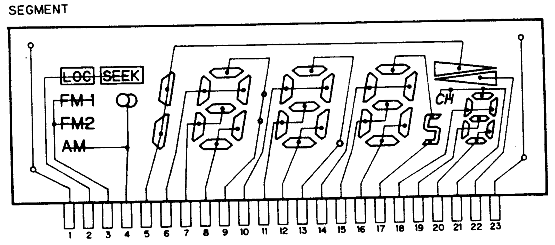

DO 1
DO 2
NC
DISP2(STEREO)
MUTE
DISP 1 (PLAY)
MW
FM
TAPE
AUTO STOP
LOCAL
T6
T5
T4
T3
45
44
43
42
41
40
39
38
37
36
35
34
33
32
31
GND 46
FM IN 47
AM IN 48
INT 49
VDD2 50
TEST 51
GND 52
VDD 1 53
XT 54
XT 55
COM2 56
NC 57
NC 58
NC 59
NC 60
30 T2
29 T1
28 T0
27 K3
26 K2
25 K1
24 K0
23 VDD 1
22 COM 1
21 S21
20 S20
19 S19
18 S18
17 S17
16 S16
UNLOCK F/F
TR. BUFFER
PHASE COMPARATOR
TR. BUFFER
14BIT IF COUNTER
IF CONTROL
SELECT
A/D CONV.
L.A.
SHIFT REG.
SIO CONT
1/2
FM
SYSTEM RESET
10BIT PROGRAMABLE COUNTER
4BIT SWALLOW COUNTER
DATA BUS
CODE BUS
COLUMN
ROW
RAM (4×128 WORD)
ADDR. DEC.
R/W BUF
ROM (16×1024 STEP)
DATA REG (16BIT)
G-REG.
MPX
PLL I/O PORTS
POWER ON RESET
CPU TIMING GENERATOR
REFERENCE DIVIDER
X'TAL OSC
DIVIDER
2Hz F/F
10Hz
2Hz
100Hz
50Hz
INH
COMPARATOR
ADDR. DEC.
INSTRUCTION DEC.
ALU
CA.
JUDGE
PROG. COUNTER
STACK REG.
LCD COM
50Hz
100Hz
LCD SEGMENT L.A.
LCD DRIVER
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
S1
S2
S3
S4
S5
S6
S7
S8
S9
S10
S11
S12
S13
S14
S15

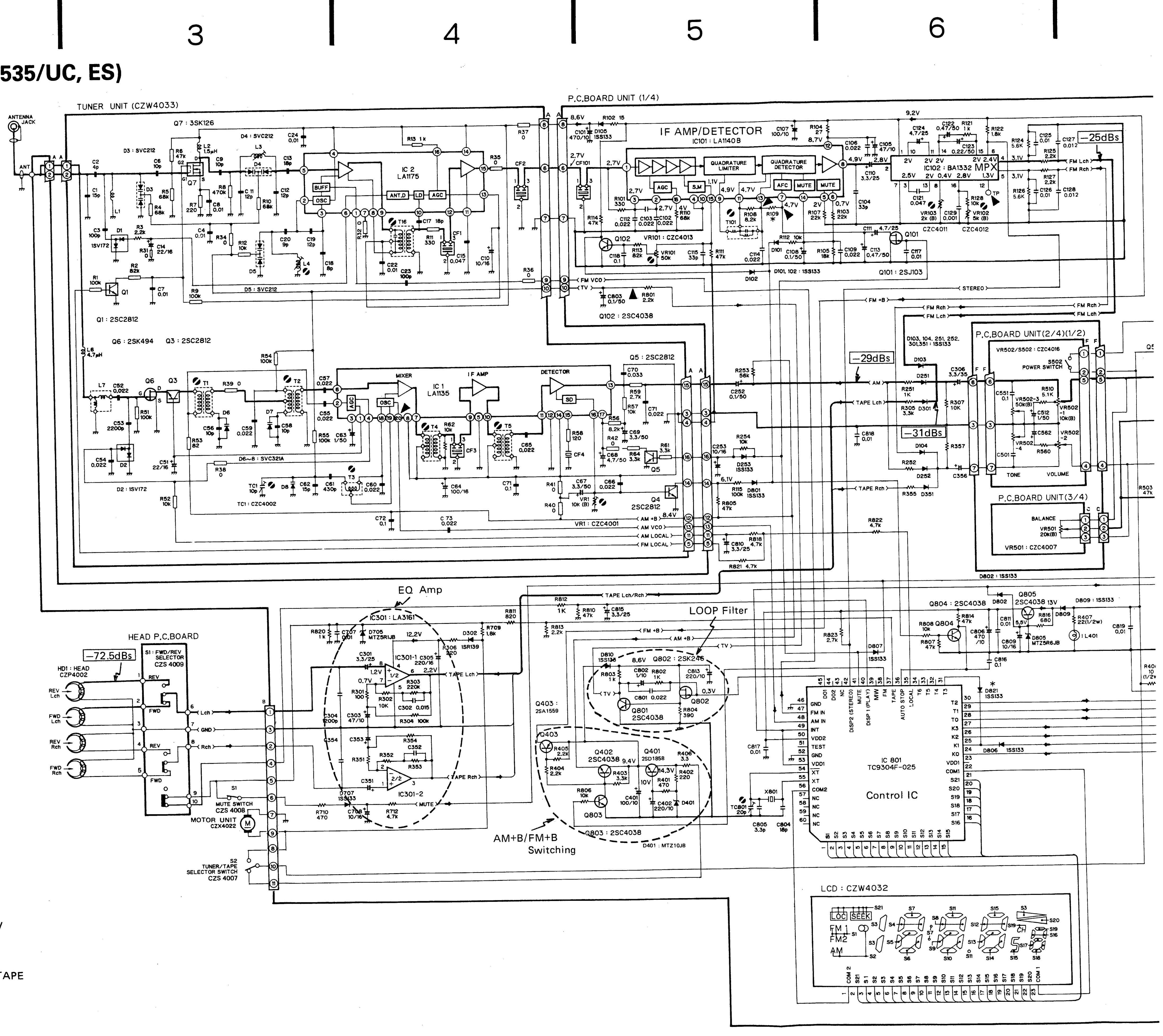
● TC9304F-013 Pin Functions
TC9304F-025

Pin No.	Pin Name	I/O	Function and Operation
1 | 21	S1 | S21	OUT | OUT	Segment signal output terminal to the LCD.
22	COM1	OUT	Common signal output terminal to the LCD.
23	VDD1		Power supply terminal No Connection
24 | 27	K0 | K3	IN | IN	Four-bit input port for key matrix input. Built-in pull down resistor.
28 | 31	T0 | T3	OUT | OUT	Four-bit output port for the key return timing output of key matrix.
32 | 34	T4 | T6	OUT | OUT	No Connection
35	LOCAL	OUT	When in LOCAL mode, ''H'' level will be output during SEEK operation.
36	AUTO STOP	IN	When the ''H'' level is imprinted, SEEK will terminate.
37	TAPE	IN	When the ''H'' level is imprinted, it becomes TAPE mode, and with the ''L'' level it becomes TUNER mode.
38	FM	OUT	When in FM, the ''H'' level will be output.
39	MW	OUT	When in MW, the ''H'' level will be output. No Connection
40	DISP1 (PLAY)	IN	When the ''H'' level is imprinted, the ''◀'' LCD will be displayed. (Only during TAPE mode.)
41	MUTE	OUT	Muting control signal output terminal. One-bit output port.
42	DISP2 (STEREO)	IN	When the ''H'' level is imprinted, the '' ⚭ '' LCD will be displayed. (Only during TUNER mode.)
43			No Connection
44	D02	OUT	PLL phase-comparison output terminal.
45	D01	OUT	D01 and D02 are output in parallel.
46	GND		Dedicated ground terminal for the built-in pre-scaler.
47	FM IN	IN	Pre-scaler input terminal when in FM. 50 — 140 MHz VCO output is input.
48	AM IN	IN	Programmable counter input terminal when in AM. 0.5 — 10 MHz VC0 output is input via direct dividing method.
49	$\overline{\text{INT}}$	IN	System reset signal input terminal. $\overline{\text{INT}}$ is reset within ''L'' level. When it becomes ''H'' level, the program starts from 0 address.
50	VDD2		Pre-scaler section, power imprint terminal. This terminal shares the $\overline{\text{INH}}$ port's input terminal.
51	TEST	IN	Test mode control terminal. No Connection
52	GND		CPU and PLL section ground terminal.
53	VDD1		Power supply terminal (5 V ±10%)
54	$\overline{\text{XT}}$		Connection terminal for quartz oscillator (7.2 MHz).
55	XT		
56	COM2	OUT	Common signal output terminal to the LCD.
57 | 60	NC | NC		No Connection

8. SCHEMATIC CIRCUIT DIAGRAM (KE-2535/UC, ES)


COMMON
LOC
SEEK
FM 1
FM2
AM
CH
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23

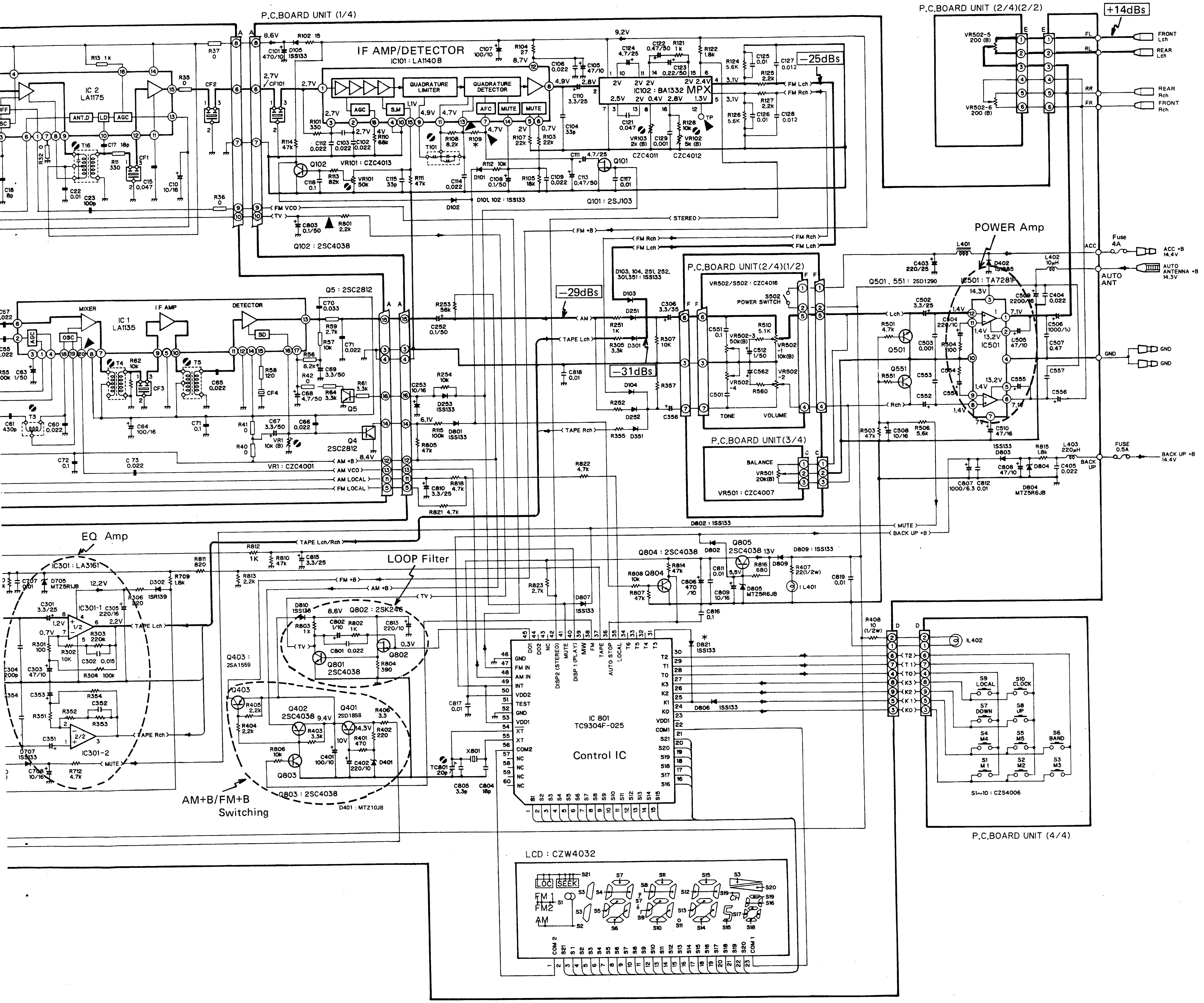

SEGMENT
LOC
SEEK
FM 1
FM2
AM
CH
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23


1
2
3
4
5
6
A
B
C
D
ANTENNA JACK
ANT
TUNER UNIT (CZW4033)
Q7 : 3SK126
D4 : SVC212
D3 : SVC212
IC 2 LA1175
BUFF
OSC
ANT.D
LD
AGC
CF2
CF1
T16
D5 : SVC212
Q1 : 2SC2812
Q6 : 2SK494
Q3 : 2SC2812
D6~8 : SVC321A
D2 : 1SV172
TC1 : CZC4002
MIXER
IF AMP
DETECTOR
IC 1 LA1135
SD
Q5 : 2SC2812
Q4 2SC2812
VR1 : CZC4001
AM +B
AM VCO
AM LOCAL
FM LOCAL
FM VCO
TV
P.C.BOARD UNIT (1/4)
IF AMP/DETECTOR
IC101 : LA1140B
QUADRATURE LIMITER
QUADRATURE DETECTOR
AFC
MUTE
S.M
IC102 : BA1332 MPX
-25dBs
FM Lch
FM Rch
VR101 : CZC4013
Q102
Q101
D101, 102 : 1SS133
Q101 : 2SJ103
Q102 : 2SC4038
CZC4011
CZC4012
STEREO
FM +B
-29dBs
-31dBs
AM
TAPE Lch
TAPE Rch
D103, 104, 251, 252, 301,351 : 1SS133
P.C.BOARD UNIT(2/4)(1/2)
VR502/S502 : CZC4016
S502 POWER SWITCH
TONE
VOLUME
P.C.BOARD UNIT(3/4)
BALANCE
VR501 20k(B)
VR501 : CZC4007
D802 : 1SS133
EQ Amp
IC301 : LA3161
IC301-1
IC301-2
TAPE Lch/Rch
LOOP Filter
Q802 : 2SK246
Q801 2SC4038
Q403 : 2SA1559
Q402 2SC4038
Q401 2SD1858
Q803
Q803 : 2SC4038
D401 : MTZ10J8
AM+B/FM+B Switching
Q804 : 2SC4038
Q805 2SC4038
IC 801 TC9304F-025
Control IC
X801
HEAD P.C.BOARD
-72.5dBs
S1 : FWD/REV SELECTOR CZS 4009
HD1 : HEAD CZP4002
REV Lch
FWD Lch
REV Rch
FWD Rch
Lch
GND
Rch
MUTE
S1 MUTE SWITCH CZS 4008
MOTOR UNIT CZX4022
S2 TUNER/TAPE SELECTOR SWITCH CZS 4007
LCD : CZW4032
LOC
SEEK
FM 1
FM2
AM
CH

SWITCHES:

- P.C.BOARD UNIT (2/4)(1/2)
  - S502: POWER SWITCH .... ON-OFF
- HEAD P.C.BOARD
  - S1: FWD/REV SELECTOR SWITCH .... FWD-REV
- MISCELLANEOUS
  - S1: MUTE SWITCH .... ON-OFF
  - S2: TUNER/TAPE SELECTOR SWITCH .... TUNER-TAPE

The under lined indicates the switch position.


P.C.BOARD UNIT (1/4)
IF AMP/DETECTOR
IC101 : LA1140B
QUADRATURE LIMITER
QUADRATURE DETECTOR
AGC
S.M
AFC
MUTE
IC102 : BA1332 MPX
−25dBs
IC 2 LA1175
ANT.D
LD
AGC
Q102
VR101 : CZC4013
CZC4011
CZC4012
Q101 : 2SJ103
D101, 102 : 1SS133
Q102 : 2SC4038
FM VCO
TV
STEREO
FM +B
FM Rch
FM Lch
P.C.BOARD UNIT (2/4)(2/2)
+14dBs
VR502-5 200 (B)
VR502-6 200 (B)
FRONT Lch
REAR Lch
REAR Rch
FRONT Rch
POWER Amp
ACC
Fuse 4A
ACC +B 14.4V
AUTO ANTENNA +B 14.3V
AUTO ANT
IC501 : TA7281P
Q501, 551 : 2SD1290
P.C.BOARD UNIT(2/4)(1/2)
VR502/S502 : CZC4016
S502 POWER SWITCH
TONE
VOLUME
−29dBs
−31dBs
D103, 104, 251, 252, 301,351 : 1SS133
AM
TAPE Lch
TAPE Rch
P.C.BOARD UNIT(3/4)
BALANCE
VR501 : CZC4007
GND
Fuse 0.5A
BACK UP +B 14.4V
BACK UP
D804 MTZ5R6JB
MIXER
IF AMP
DETECTOR
IC 1 LA1135
OSC
SD
Q5 : 2SC2812
Q4 2SC2812
VR1 : CZC4001
AM +B
AM VCO
AM LOCAL
FM LOCAL
MUTE
BACK UP +B
D802 : 1SS133
EQ Amp
IC301 : LA3161
IC301-1
IC301-2
TAPE Lch/Rch
LOOP Filter
Q802 : 2SK246
Q801 2SC4038
Q403 : 2SA1559
Q402 2SC4038
Q401 2SD1858
Q803 : 2SC4038
D401 : MTZ10JB
AM+B/FM+B Switching
Q804 : 2SC4038
Q805 2SC4038
D809 : 1SS133
D805 MTZ5R6JB
IL401
IC 801 TC9304F-025
Control IC
X801
D821 1SS133
D806 1SS133
IL402
S9 LOCAL
S10 CLOCK
S7 DOWN
S8 UP
S4 M4
S5 M5
S6 BAND
S1 M1
S2 M2
S3 M3
S1~10 : CZS4006
P.C.BOARD UNIT (4/4)
LCD : CZW4032
LOC
SEEK
FM1
FM2
AM
ST
A
B
C
D

NOTE :

indicates a chip resistor.

indicates a chip capacitor.

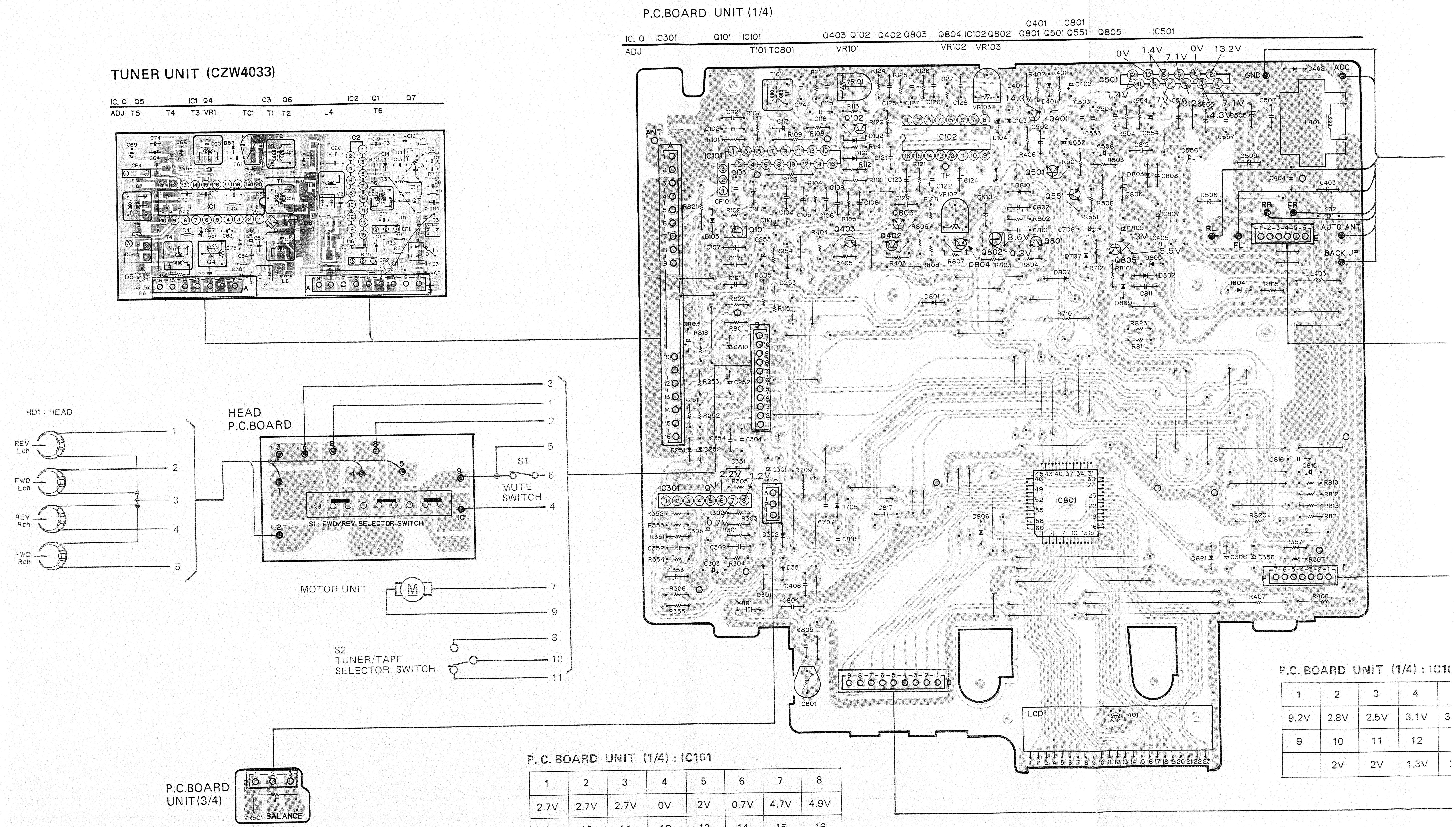
indicates a chip transistor.

- P.C.BOARD UNIT (1/4)

	KE-2535/UC	KE-2535/ES
R109	8.2K	27K
D821	X	○

Fig. 15

9. CONNECTION DIAGRAM (KE-2535/UC, ES)

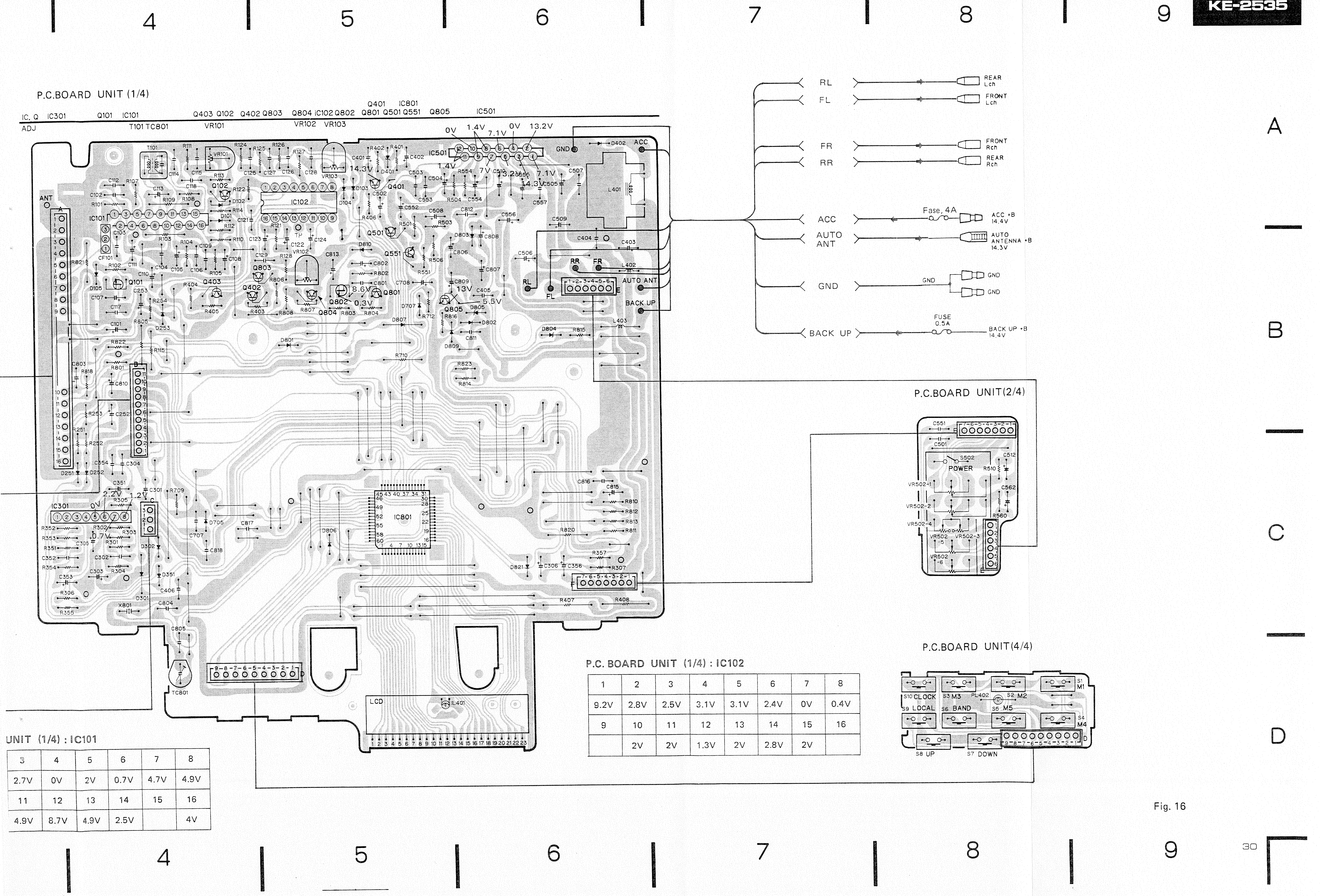

P.C.BOARD UNIT (1/4)
IC, Q IC301 Q101 IC101 Q403 Q102 Q402 Q803 Q804 IC102 Q802 Q401 Q801 IC801 Q501 Q551 Q805 IC501
ADJ T101 TC801 VR101 VR102 VR103
TUNER UNIT (CZW4033)
IC, Q Q5 IC1 Q4 Q3 Q6 IC2 Q1 Q7
ADJ T5 T4 T3 VR1 TC1 T1 T2 L4 T6
HD1 : HEAD
REV Lch
FWD Lch
REV Rch
FWD Rch
HEAD P.C.BOARD
S1 : FWD/REV SELECTOR SWITCH
S1
MUTE SWITCH
MOTOR UNIT
S2 TUNER/TAPE SELECTOR SWITCH
P.C.BOARD UNIT(3/4)
VR501 BALANCE
ANT
GND
ACC
AUTO ANT
BACK UP
RR
FR
RL
FL
LCD
IL401
IC101
IC102
IC301
IC501
IC801
L401
L402
L403
X801
0V
1.4V
7.1V
0V
13.2V
14.3V
1.4V
7V
13.2V
7.1V
14.3V
8.6V
0.3V
13V
5.5V
2.2V
1.2V
0V
0.7V

P. C. BOARD UNIT (1/4) : IC101

1	2	3	4	5	6	7	8
2.7V	2.7V	2.7V	0V	2V	0.7V	4.7V	4.9V
9	10	11	12	13	14	15	16
4.9V	0V	4.9V	8.7V	4.9V	2.5V		4V

P.C. BOARD UNIT (1/4) : IC1

1	2	3	4
9.2V	2.8V	2.5V	3.1V
9	10	11	12
	2V	2V	1.3V


4
5
6
7
8
9
A
B
C
D
P.C.BOARD UNIT (1/4)
IC, Q ADJ
IC301
Q101 IC101 T101 TC801
Q403 Q102 VR101
Q402 Q803
Q804 IC102 Q802 VR102 VR103
Q401 IC801 Q801 Q501 Q551
Q805
IC501
ANT
GND
ACC
D402
L401
0V 1.4V 7.1V 0V 13.2V
14.3V 1.4V 7V 3.2V 7.1V 14.3V
IC102
IC101
Q501
Q551
Q401
Q403
Q402
Q803
Q802 8.6V 0.3V
Q801
Q804
Q805 13V
5.5V
RR FR RL FL
AUTO ANT
BACK UP
L402
L403
IC801
IC301
2.2V 1.2V 0V 0.7V
TC801
LCD
IL401
RL
FL
FR
RR
REAR Lch
FRONT Lch
FRONT Rch
REAR Rch
ACC
Fase, 4A
ACC +B 14.4V
AUTO ANT
AUTO ANTENNA +B 14.3V
GND
GND
GND
FUSE 0.5A
BACK UP
BACK UP +B 14.4V
P.C.BOARD UNIT(2/4)
C551
C501
S502 POWER
R510
C512
C562
VR502-1
VR502-2
VR502-4
VR502-5
VR502-3
VR502-6
R560
P.C.BOARD UNIT(4/4)
S1 M1
S10 CLOCK
S3 M3
PL402
S2 M2
S9 LOCAL
S6 BAND
S5 M5
S4 M4
S8 UP
S7 DOWN

P.C. BOARD UNIT (1/4) : IC102

1	2	3	4	5	6	7	8
9.2V	2.8V	2.5V	3.1V	3.1V	2.4V	0V	0.4V
9	10	11	12	13	14	15	16
	2V	2V	1.3V	2V	2.8V	2V	

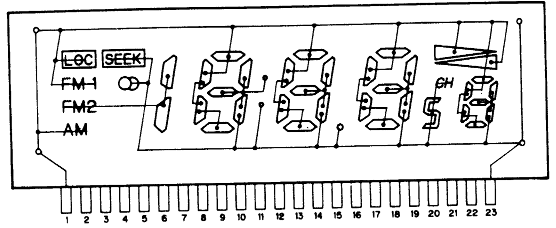
UNIT (1/4) : IC101

3	4	5	6	7	8
2.7V	0V	2V	0.7V	4.7V	4.9V
11	12	13	14	15	16
4.9V	8.7V	4.9V	2.5V		4V

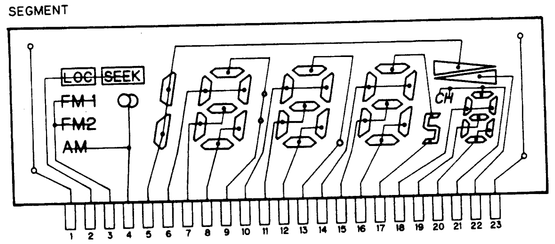
Fig. 16

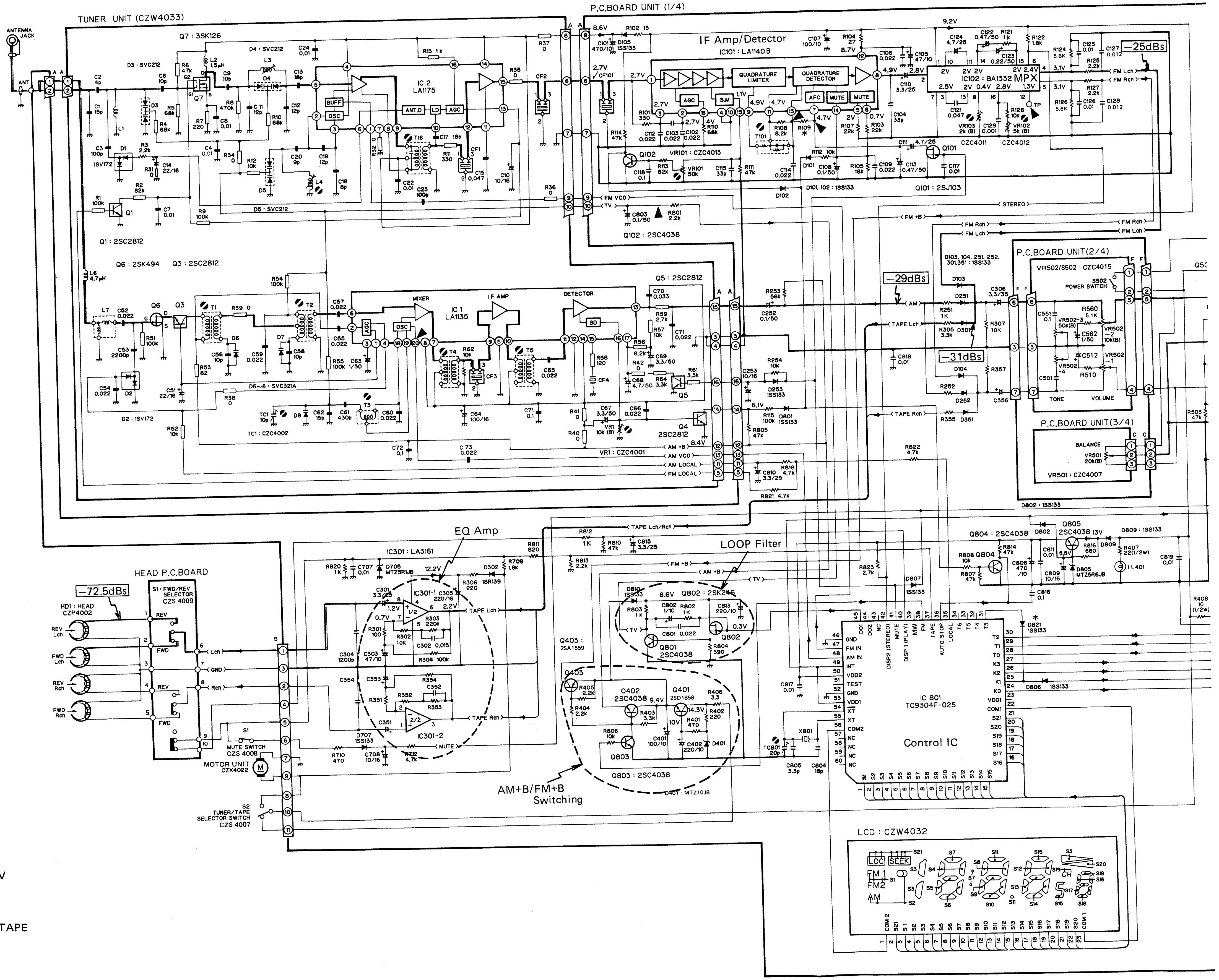
10.SCHEMATIC CIRCUIT DIAGRAM (KE-2424/UC, ES, 2022/US)

COMMON


LOC
SEEK
FM1
FM2
AM
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23

SEGMENT

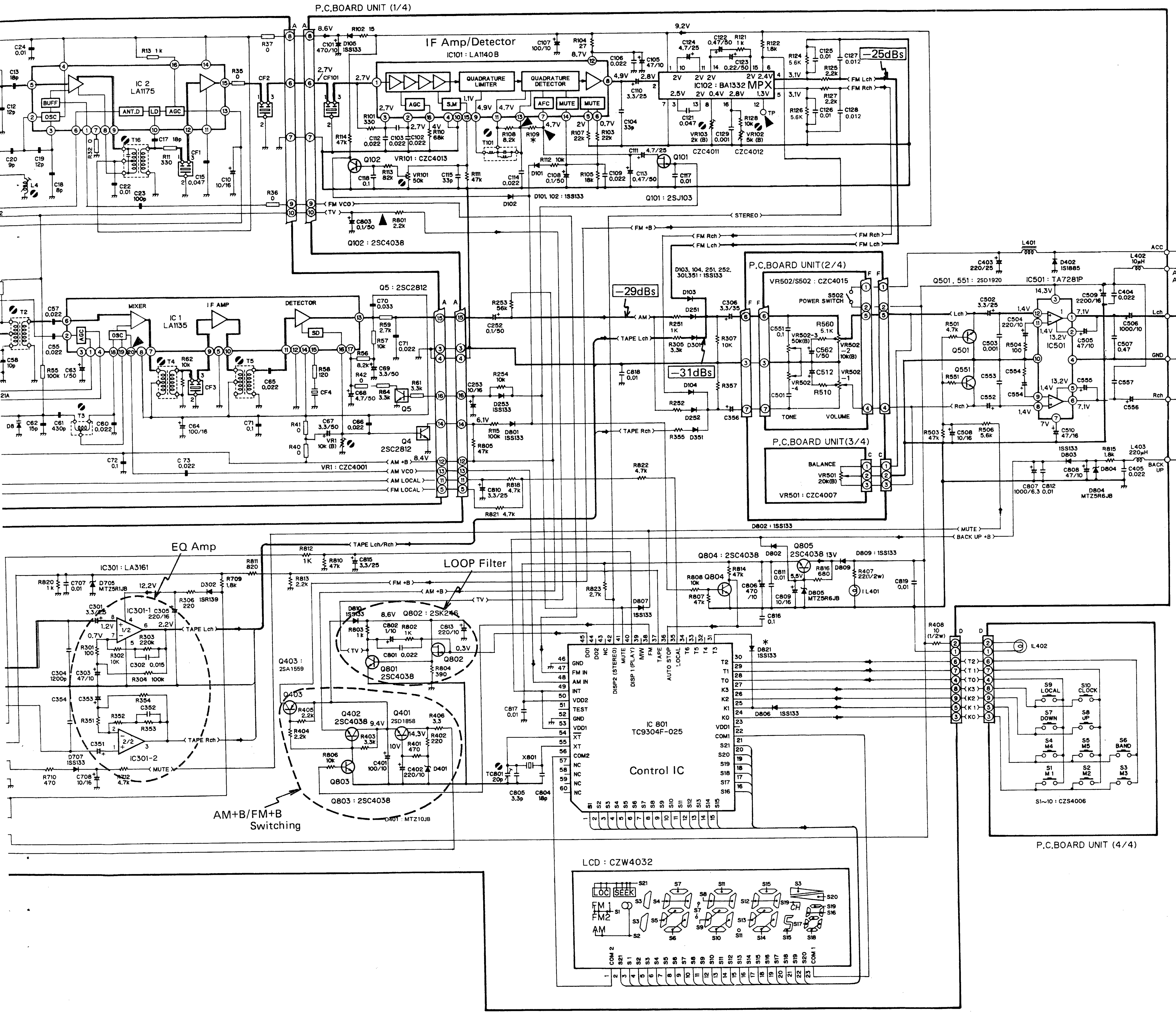

LOC
SEEK
FM1
FM2
AM
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23


TUNER UNIT (CZW4033)
ANTENNA JACK
ANT
Q7 : 3SK126
D3 : SVC212
D4 : SVC212
IC 2
LA1175
BUFF
OSC
ANT.D
LD
AGC
CF2
Q1 : 2SC2812
Q6 : 2SK494
Q3 : 2SC2812
D5 : SVC212
D6~8 : SVC321A
D2 : 1SV172
TC1 : CZC4002
MIXER
IF AMP
DETECTOR
IC 1
LA1135
Q5 : 2SC2812
Q4
2SC2812
VR1 : CZC4001
P.C.BOARD UNIT (1/4)
IF Amp/Detector
IC101 : LA1140B
QUADRATURE LIMITER
QUADRATURE DETECTOR
AFC
MUTE
IC102 : BA1332 MPX
-25dBs
VR101 : CZC4013
Q102 : 2SC4038
Q101 : 2SJ103
D101, 102 : 1SS133
CZC4011
CZC4012
FM Lch
FM Rch
STEREO
FM +B
AM +B
AM VCO
AM LOCAL
FM LOCAL
FM VCO
TV
-29dBs
-31dBs
TAPE Lch
TAPE Rch
P.C.BOARD UNIT(2/4)
VR502/S502 : CZC4015
S502 POWER SWITCH
TONE
VOLUME
P.C.BOARD UNIT(3/4)
BALANCE
VR501 : CZC4007
D103, 104, 251, 252, 301, 351 : 1SS133
D802 : 1SS133
Q804 : 2SC4038
Q805 2SC4038
D809 : 1SS133
IL401
EQ Amp
IC301 : LA3161
IC301-1
IC301-2
MUTE
LOOP Filter
Q802 : 2SK246
Q801 2SC4038
Q403 : 2SA1559
Q402 2SC4038
Q401 2SD1858
Q803 : 2SC4038
D401 : MTZ10JB
AM+B/FM+B Switching
HEAD P.C.BOARD
S1 : FWD/REV SELECTOR CZS 4009
-72.5dBs
HD1 : HEAD CZP4002
REV Lch
FWD Lch
REV Rch
FWD Rch
MUTE SWITCH CZS 4008
MOTOR UNIT CZX4022
S2 TUNER/TAPE SELECTOR SWITCH CZS 4007
IC 801
TC9304F-025
Control IC
X801
LCD : CZW4032
LOC
SEEK
FM1
FM2
AM
CH

SWITCHES:

- P.C.BOARD UNIT (2/4)(1/2)
  S502: POWER SWITCH .... ON-OFF
- HEAD P.C.BOARD
  S1: FWD/REV SELECTOR SWITCH .... FWD-REV
- MISCELLANEOUS
  S1: MUTE SWITCH .... ON-OFF
  S2: TUNER/TAPE SELECTOR SWITCH .... TUNER-TAPE

The under lined indicates the switch position.


4
5
6
7
8
9
A
B
C
D
P.C.BOARD UNIT (1/4)
IF Amp/Detector
IC101 : LA1140B
QUADRATURE LIMITER
QUADRATURE DETECTOR
AGC
S.M
AFC
MUTE
IC102 : BA1332 MPX
-25dBs
FM Lch
FM Rch
IC 2 LA1175
BUFF
OSC
ANT.D
LD
AGC
T16
CF1
CF2
CF101
T101
VR101 : CZC4013
Q102
Q101
Q101 : 2SJ103
Q102 : 2SC4038
D101, 102 : 1SS133
CZC4011
CZC4012
VR103 2k (B)
VR102 5k (B)
STEREO
FM VCO
TV
FM +B
FM Rch
FM Lch
D103, 104, 251, 252, 301, 351 : 1SS133
-29dBs
-31dBs
AM
TAPE Lch
TAPE Rch
Q5 : 2SC2812
MIXER
IC 1 LA1135
IF AMP
DETECTOR
OSC
AGC
SD
T2
T3
T4
T5
CF3
CF4
Q4 2SC2812
Q5
VR1 : CZC4001
AM +B
AM VCO
AM LOCAL
FM LOCAL
D253 1SS133
D801 1SS133
P.C.BOARD UNIT(2/4)
VR502/S502 : CZC4015
S502 POWER SWITCH
TONE
VOLUME
P.C.BOARD UNIT(3/4)
BALANCE
VR501 20k(B)
VR501 : CZC4007
D602 : 1SS133
Q501, 551 : 2SD1920
IC501 : TA7281P
L401
D402 1S1885
L402 10μH
FUSE 4A
ACC
ACC +B 14.4V
AUTO ANT
AUTO ANTENNA +B 14.3V
+14dBs
Lch
GND
Rch
L403 220μH
FUSE 0.5A
BACK UP
BACK UP +B 14.4V
D804 MTZ5R6JB
MUTE
BACK UP +B
EQ Amp
IC301 : LA3161
IC301-1
IC301-2
TAPE Lch/Rch
TAPE Lch
TAPE Rch
D705 MTZ5R1JB
D302 1SR139
D707 1SS133
LOOP Filter
Q802 : 2SK246
Q801 2SC4038
Q802
D810 1SS133
Q403 : 2SA1559
Q402 2SC4038
Q401 2SD1858
Q803
Q803 : 2SC4038
D401 : MTZ10JB
AM+B/FM+B Switching
Q804 : 2SC4038
Q805 2SC4038
D802
D809 : 1SS133
D805 MTZ5R6JB
IL401
D807 1SS133
D821 1SS133
D806 1SS133
IC 801 TC9304F-025
Control IC
X801
DO1
DO2
MUTE
DISP2 (STEREO)
DISP (PLAY)
MW
FM
TAPE
AUTO STOP
LOCAL
T6
T5
T2
T1
T0
K3
K2
K1
K0
VDD1
COM1
GND
FM IN
AM IN
INT
VDD2
TEST
XT
COM2
NC
IL402
S9 LOCAL
S10 CLOCK
S7 DOWN
S8 UP
S4 M4
S5 M5
S6 BAND
S1 M1
S2 M2
S3 M3
S1~10 : CZS4006
P.C.BOARD UNIT (4/4)
LCD : CZW4032
LOC
SEEK
FM1
FM2
AM
CH
COM 2
COM 1

NOTE :

indicates a chip resistor.

indicates a chip capacitor.

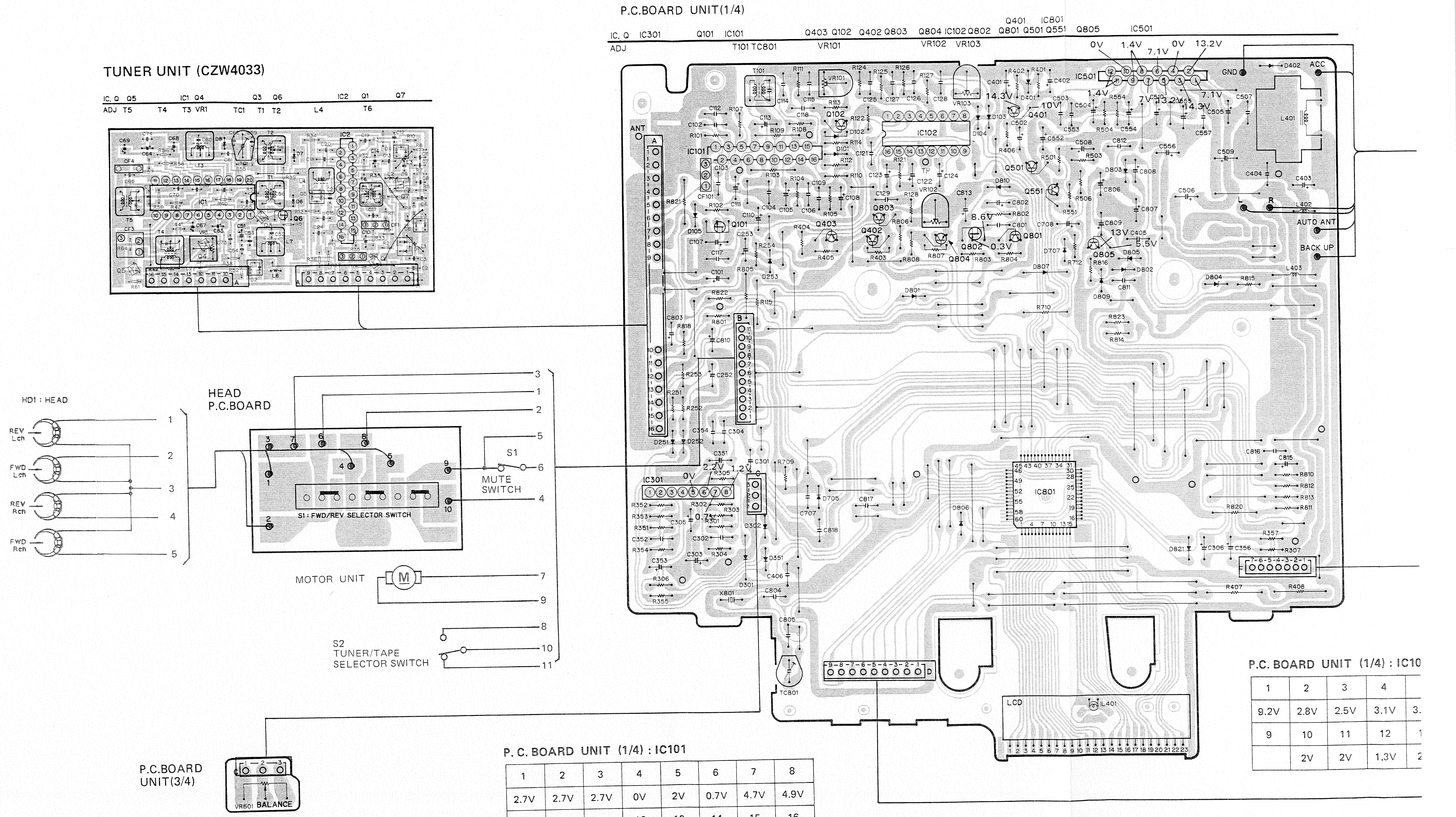
indicates a chip transistor.

● P.C.BOARD UNIT (1/4)

	KE-2424/UC KE-2022/UC	KE-2424/ES
R109	8.2K	27K
D821	×	○

Fig. 17

11. CONNECTION DIAGRAM (KE-2424/UC, ES, 2022/US)

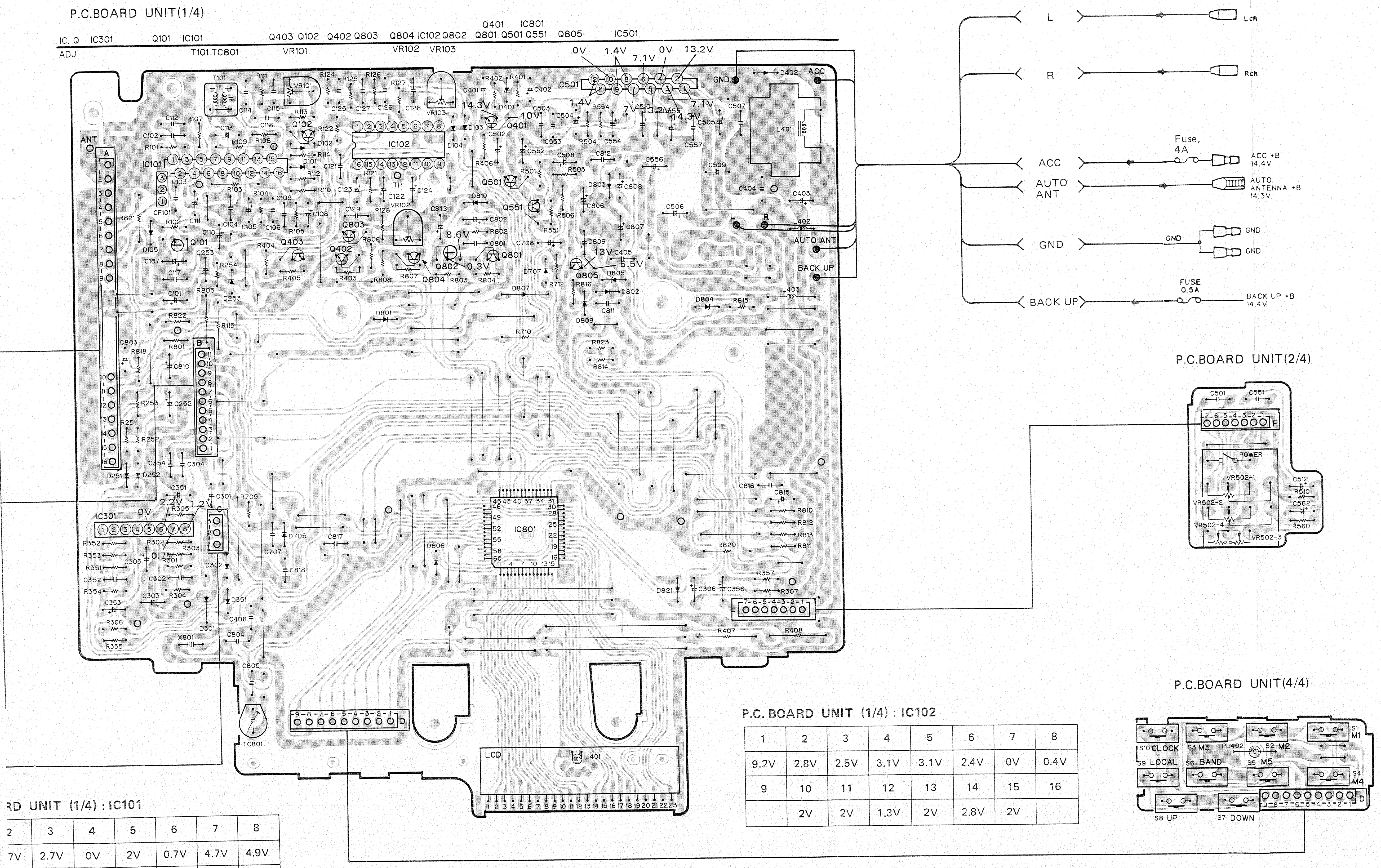

1
2
3
4
5
6
A
B
C
D
TUNER UNIT (CZW4033)
IC, Q Q5 IC1 Q4 Q3 Q6 IC2 Q1 Q7
ADJ T5 T4 T3 VR1 TC1 T1 T2 L4 T6
P.C.BOARD UNIT(1/4)
IC, Q IC301 Q101 IC101 Q403 Q102 Q402 Q803 Q804 IC102 Q802 Q401 Q801 Q501 IC801 Q551 Q805 IC501
ADJ T101 TC801 VR101 VR102 VR103
ANT
GND
ACC
AUTO ANT
BACK UP
L401
LCD
IL401
IC801
IC501
IC102
IC101
IC301
TC801
HD1 : HEAD
REV Lch
FWD Lch
REV Rch
FWD Rch
HEAD P.C.BOARD
S1 : FWD/REV SELECTOR SWITCH
S1
MUTE SWITCH
MOTOR UNIT
S2 TUNER/TAPE SELECTOR SWITCH
P.C.BOARD UNIT(3/4)
VR501 BALANCE
0V
1.4V
7.1V
0V
13.2V
14.3V
10V
1.4V
7V
3.2V
4.3V
7.1V
8.6V
0.3V
13V
5.5V
2.2V
1.2V
0.7V

P.C. BOARD UNIT (1/4) : IC101

1	2	3	4	5	6	7	8
2.7V	2.7V	2.7V	0V	2V	0.7V	4.7V	4.9V
9	10	11	12	13	14	15	16
4.9V	0V	4.9V	8.7V	4.9V	2.5V		4V

P.C. BOARD UNIT (1/4) : IC10

1	2	3	4	
9.2V	2.8V	2.5V	3.1V	3.
9	10	11	12	1
	2V	2V	1.3V	2


P.C.BOARD UNIT(1/4)
IC, Q ADJ
IC301
Q101 IC101 T101 TC801
Q403 Q102 Q402 Q803 VR101
Q804 IC102 Q802 VR102 VR103
Q401 Q801 Q501 IC801 Q551
Q805
IC501
0V 1.4V 7.1V 0V 13.2V
ANT
GND
ACC
AUTO ANT
BACK UP
L
R
IC102
IC801
LCD
TC801
L
R
ACC
AUTO ANT
GND
BACK UP
Lch
Rch
Fuse, 4A
ACC +B 14.4V
AUTO ANTENNA +B 14.3V
GND
FUSE 0.5A
BACK UP +B 14.4V
P.C.BOARD UNIT(2/4)
POWER
VR502-1
VR502-2
VR502-3
VR502-4
P.C.BOARD UNIT(4/4)
S10 CLOCK
S9 LOCAL
S3 M3
S6 BAND
PL402
S2 M2
S5 M5
S1 M1
S4 M4
S8 UP
S7 DOWN

P.C. BOARD UNIT (1/4) : IC102

1	2	3	4	5	6	7	8
9.2V	2.8V	2.5V	3.1V	3.1V	2.4V	0V	0.4V
9	10	11	12	13	14	15	16
	2V	2V	1.3V	2V	2.8V	2V	

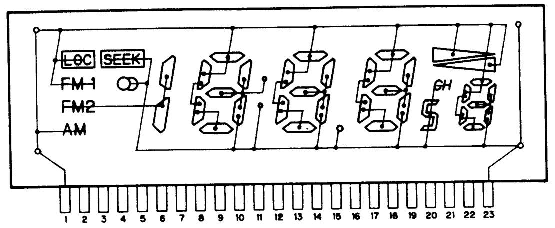
RD UNIT (1/4) : IC101

2	3	4	5	6	7	8
7V	2.7V	0V	2V	0.7V	4.7V	4.9V
0	11	12	13	14	15	16
V	4.9V	8.7V	4.9V	2.5V		4V

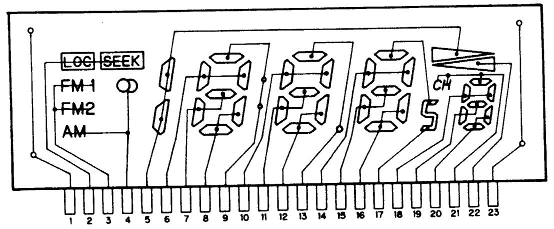
Fig. 18

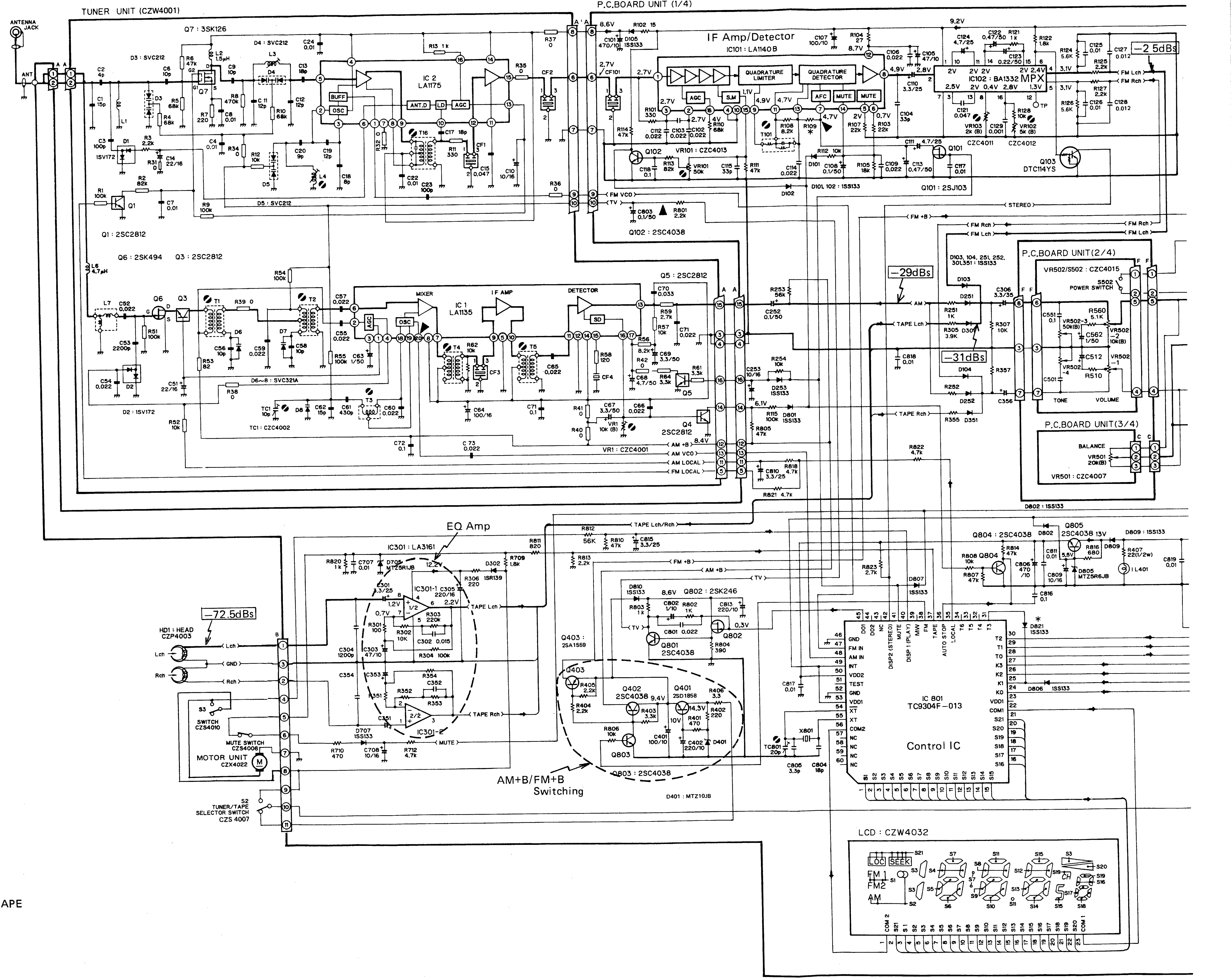
12. SCHEMATIC CIRCUIT DIAGRAM (KE-1414/UC, ES, 1022/US)

COMMON


LOC
SEEK
FM 1
FM2
AM
CH
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23

SEGMENT

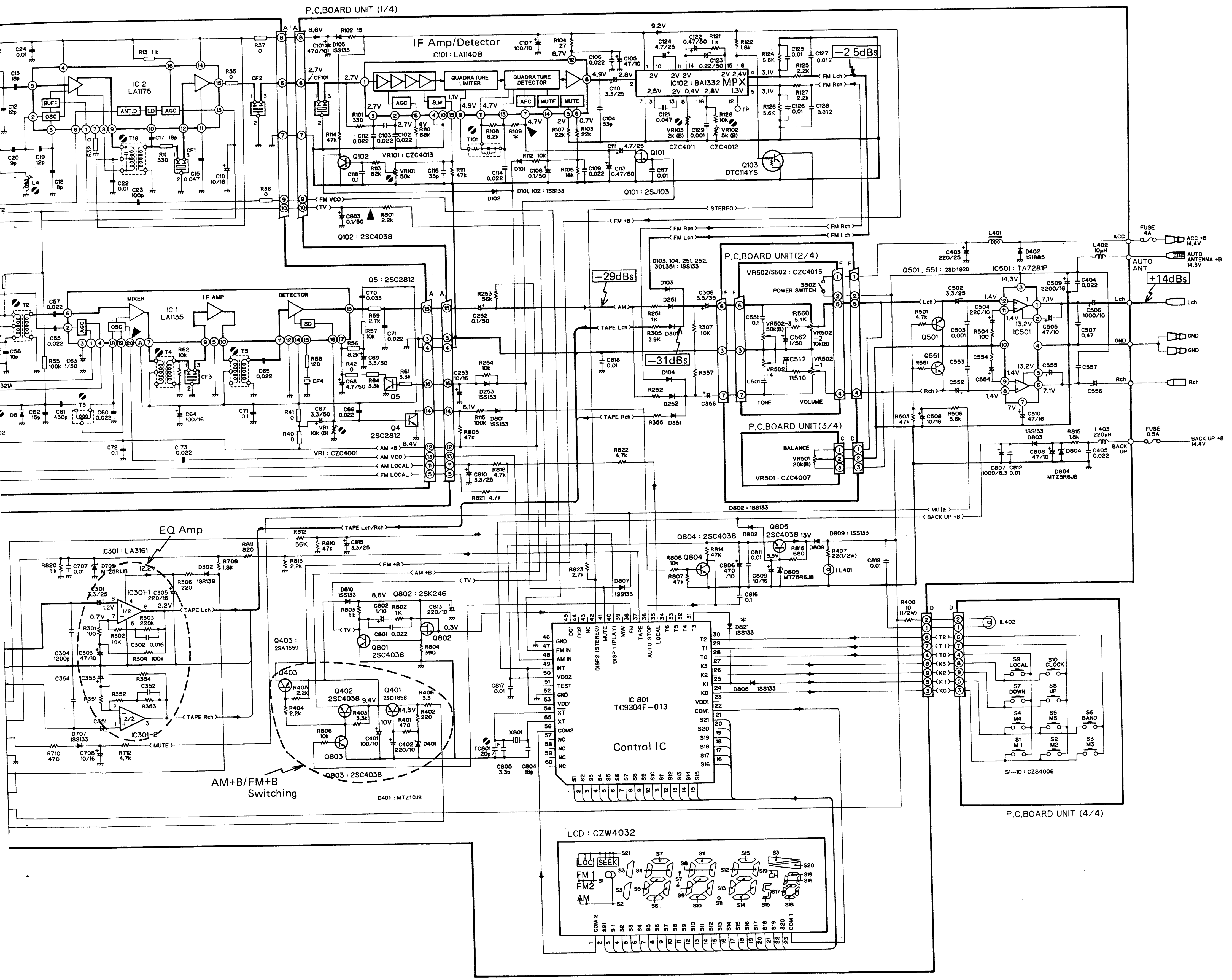

LOC
SEEK
FM 1
FM2
AM
CH
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23


TUNER UNIT (CZW4001)
ANTENNA JACK
ANT
Q7 : 3SK126
D3 : SVC212
D4 : SVC212
IC 2 LA1175
BUFF
OSC
ANT.D
LD
AGC
D5 : SVC212
Q1 : 2SC2812
Q6 : 2SK494
Q3 : 2SC2812
D2 : 1SV172
D6~8 : SVC321A
TC1 : CZC4002
MIXER
IF AMP
DETECTOR
IC 1 LA1135
SD
Q5 : 2SC2812
Q4 2SC2812
VR1 : CZC4001
P.C.BOARD UNIT (1/4)
IF Amp/Detector
IC101 : LA1140B
QUADRATURE LIMITER
QUADRATURE DETECTOR
AGC
S.M
AFC
MUTE
VR101 : CZC4013
Q102
Q102 : 2SC4038
Q101 : 2SJ103
Q103 DTC114YS
IC102 : BA1332 MPX
CZC4011
CZC4012
−2 5dBs
FM Lch
FM Rch
STEREO
FM +B
−29dBs
−31dBs
AM
TAPE Lch
TAPE Rch
D103, 104, 251, 252, 301,351 : 1SS133
P.C.BOARD UNIT(2/4)
VR502/S502 : CZC4015
S502 POWER SWITCH
TONE
VOLUME
P.C.BOARD UNIT(3/4)
BALANCE
VR501 20k(B)
VR501 : CZC4007
AM +B
AM VCO
AM LOCAL
FM LOCAL
FM VCO
TV
D802 : 1SS133
EQ Amp
IC301 : LA3161
IC301-1
IC301-2
TAPE Lch/Rch
−72.5dBs
HD1 : HEAD CZP4003
Lch
GND
Rch
S3
SWITCH CZS4010
MUTE SWITCH CZS4006
MOTOR UNIT CZX4022
S2 TUNER/TAPE SELECTOR SWITCH CZS 4007
MUTE
Q802 : 2SK246
Q801 2SC4038
Q403 : 2SA1559
Q402 2SC4038
Q401 2SD1858
Q803 : 2SC4038
D401 : MTZ10JB
AM+B/FM+B Switching
Q804 : 2SC4038
Q805 2SC4038
D809 : 1SS133
D805 MTZ5R6JB
IC 801 TC9304F−013
Control IC
X801
LCD : CZW4032
LOC
SEEK
FM 1
FM2
AM
D806 1SS133
D821 1SS133

SWITCHES

- P.C.BOARD UNIT (2/4)
  - S502: POWER SWITCH . . . . ON-OFF
- MISCELLANEOUS
  - S1: MUTE SWITCH . . . . ON-OFF
  - S2: TUNER/TAPE SELECTOR SWITCH . . . . TUNER-TAPE
  - S3: MOTOR STOP SWITCH . . . . ON-OFF

The under lined indicates the switch position.


4
5
6
7
8
9
A
B
C
D
P.C.BOARD UNIT (1/4)
IF Amp/Detector
IC101 : LA1140B
QUADRATURE LIMITER
QUADRATURE DETECTOR
AGC
S.M
AFC
MUTE
IC102 : BA1332 MPX
-25dBs
FM Lch
FM Rch
IC 2 LA1175
BUFF
OSC
ANT.D
LD
AGC
VR101 : CZC4013
Q101 : 2SJ103
Q102 : 2SC4038
Q103 DTC114YS
CZC4011
CZC4012
D101, 102 : 1SS133
FM VCO
TV
STEREO
FM +B
MIXER
IF AMP
DETECTOR
IC 1 LA1135
SD
Q5 : 2SC2812
Q4 2SC2812
VR1 : CZC4001
AM +B
AM VCO
AM LOCAL
FM LOCAL
-29dBs
-31dBs
AM
TAPE Lch
TAPE Rch
D103, 104, 251, 252, 301, 351 : 1SS133
P.C.BOARD UNIT(2/4)
VR502/S502 : CZC4015
S502 POWER SWITCH
TONE
VOLUME
P.C.BOARD UNIT(3/4)
BALANCE
VR501 : CZC4007
Q501, 551 : 2SD1920
IC501 : TA7281P
+14dBs
FUSE 4A
ACC +B 14.4V
AUTO ANTENNA +B 14.3V
AUTO ANT
Lch
GND
Rch
FUSE 0.5A
BACK UP +B 14.4V
D804 MTZ5R6JB
D802 : 1SS133
MUTE
BACK UP +B
TAPE Lch/Rch
EQ Amp
IC301 : LA3161
Q804 : 2SC4038
Q805 2SC4038
D809 : 1SS133
D805 MTZ5R6JB
Q802 : 2SK246
Q801 2SC4038
Q403 2SA1559
Q402 2SC4038
Q401 2SD1858
Q803 : 2SC4038
AM+B/FM+B Switching
D401 : MTZ10JB
D821 1SS133
D806 1SS133
IC 801 TC9304F-013
Control IC
X801
LCD : CZW4032
LOC
SEEK
FM 1
FM2
AM
CH
P.C.BOARD UNIT (4/4)
S9 LOCAL
S10 CLOCK
S7 DOWN
S8 UP
S4 M4
S5 M5
S6 BAND
S1 M1
S2 M2
S3 M3
S1~10 : CZS4006
IL401
IL402

NOTE :

indicates a chip resistor.

indicates a chip capacitor.

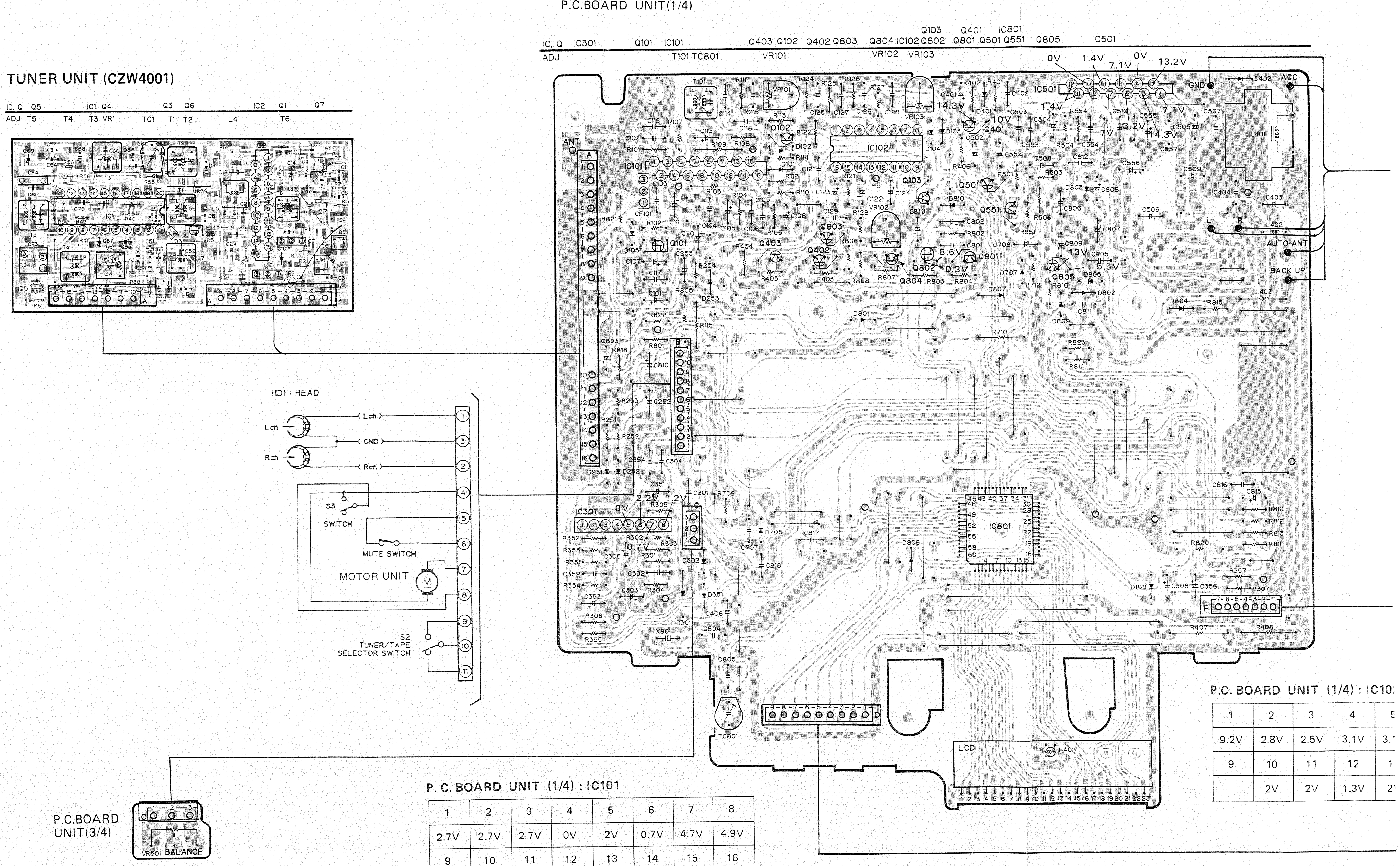
indicates a chip transistor.

●P.C.BOARD UNIT (1/4)

	KE-1414/UC KE-1022/US	KE-1414/ES
R109	8.2K	27K
D821	×	○

Fig. 19

13. CONNECTION DIAGRAM (KE-1414/UC, ES, 1022/US)

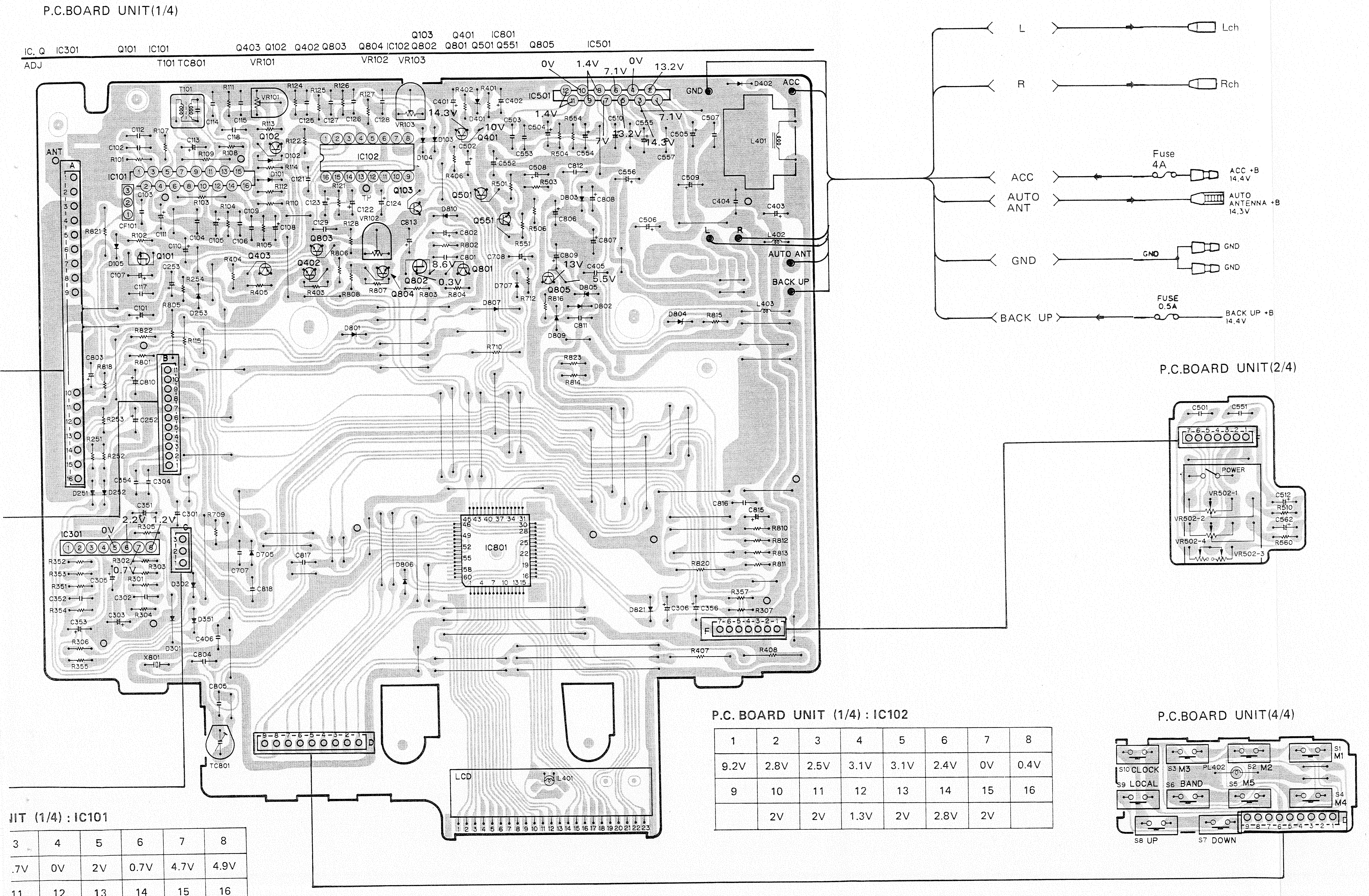

P.C.BOARD UNIT(1/4)
IC, Q IC301 Q101 IC101 Q403 Q102 Q402 Q803 Q804 IC102 Q103 Q802 Q401 Q801 Q501 IC801 Q551 Q805 IC501
ADJ T101 TC801 VR101 VR102 VR103
TUNER UNIT (CZW4001)
IC, Q Q5 IC1 Q4 Q3 Q6 IC2 Q1 Q7
ADJ T5 T4 T3 VR1 TC1 T1 T2 L4 T6
ANT
GND
ACC
AUTO ANT
BACK UP
L401
L402
L403
IC501
IC102
IC101
IC801
IC301
LCD
IL401
TC801
HD1 : HEAD
Lch
Rch
GND
S3
SWITCH
MUTE SWITCH
MOTOR UNIT
M
S2
TUNER/TAPE
SELECTOR SWITCH
P.C.BOARD
UNIT(3/4)
VR501 BALANCE
0V
1.4V
7.1V
0V
13.2V
14.3V
1.4V
10V
7V
13.2V
14.3V
7.1V
8.6V
0.3V
13V
5.5V
2.2V
1.2V
0V
0.7V

P. C. BOARD UNIT (1/4) : IC101

1	2	3	4	5	6	7	8
2.7V	2.7V	2.7V	0V	2V	0.7V	4.7V	4.9V
9	10	11	12	13	14	15	16
4.9V	0V	4.9V	8.7V	4.9V	2.5V		4V

P.C. BOARD UNIT (1/4) : IC10

1	2	3	4
9.2V	2.8V	2.5V	3.1V
9	10	11	12
	2V	2V	1.3V


4
5
6
7
8
A
B
C
D
P.C.BOARD UNIT(1/4)
IC, Q ADJ
IC301
Q101
IC101
T101 TC801
Q403 Q102 VR101
Q402 Q803
Q804 IC102 VR102
Q103 Q802 VR103
Q401 Q801
IC801 Q501 Q551
Q805
IC501
0V
1.4V
7.1V
0V
13.2V
14.3V
10V
1.4V
7.1V
13.2V
14.3V
7V
GND
ACC
D402
L401
AUTO ANT
BACK UP
L402
L403
ANT
8.6V
0.3V
13V
5.5V
2.2V
1.2V
0V
0.7V
IC102
IC801
LCD
IL401
TC801
X801
L
R
Lch
Rch
ACC
AUTO ANT
GND
BACK UP
Fuse 4A
ACC +B 14.4V
AUTO ANTENNA +B 14.3V
GND
GND
FUSE 0.5A
BACK UP +B 14.4V
P.C.BOARD UNIT(2/4)
C501
C551
POWER
VR502-1
VR502-2
VR502-3
VR502-4
C512
R510
C562
R560
P.C.BOARD UNIT(4/4)
S1 M1
S2 M2
S3 M3
S4 M4
S5 M5
S6 BAND
S7 DOWN
S8 UP
S9 LOCAL
S10 CLOCK
PL402

P.C. BOARD UNIT (1/4) : IC102

1	2	3	4	5	6	7	8
9.2V	2.8V	2.5V	3.1V	3.1V	2.4V	0V	0.4V
9	10	11	12	13	14	15	16
	2V	2V	1.3V	2V	2.8V	2V	

IT (1/4) : IC101

3	4	5	6	7	8
.7V	0V	2V	0.7V	4.7V	4.9V
11	12	13	14	15	16
.9V	8.7V	4.9V	2.5V		4V

Fig. 20

4 5 6 7 8 9

14. CASSETTE MECHANISM ASSY EXPLODED VIEW

14.1 CASSETTE MECHANISM ASSY (KE-2535/UC, ES, 2022/US, 2424/UC, ES)

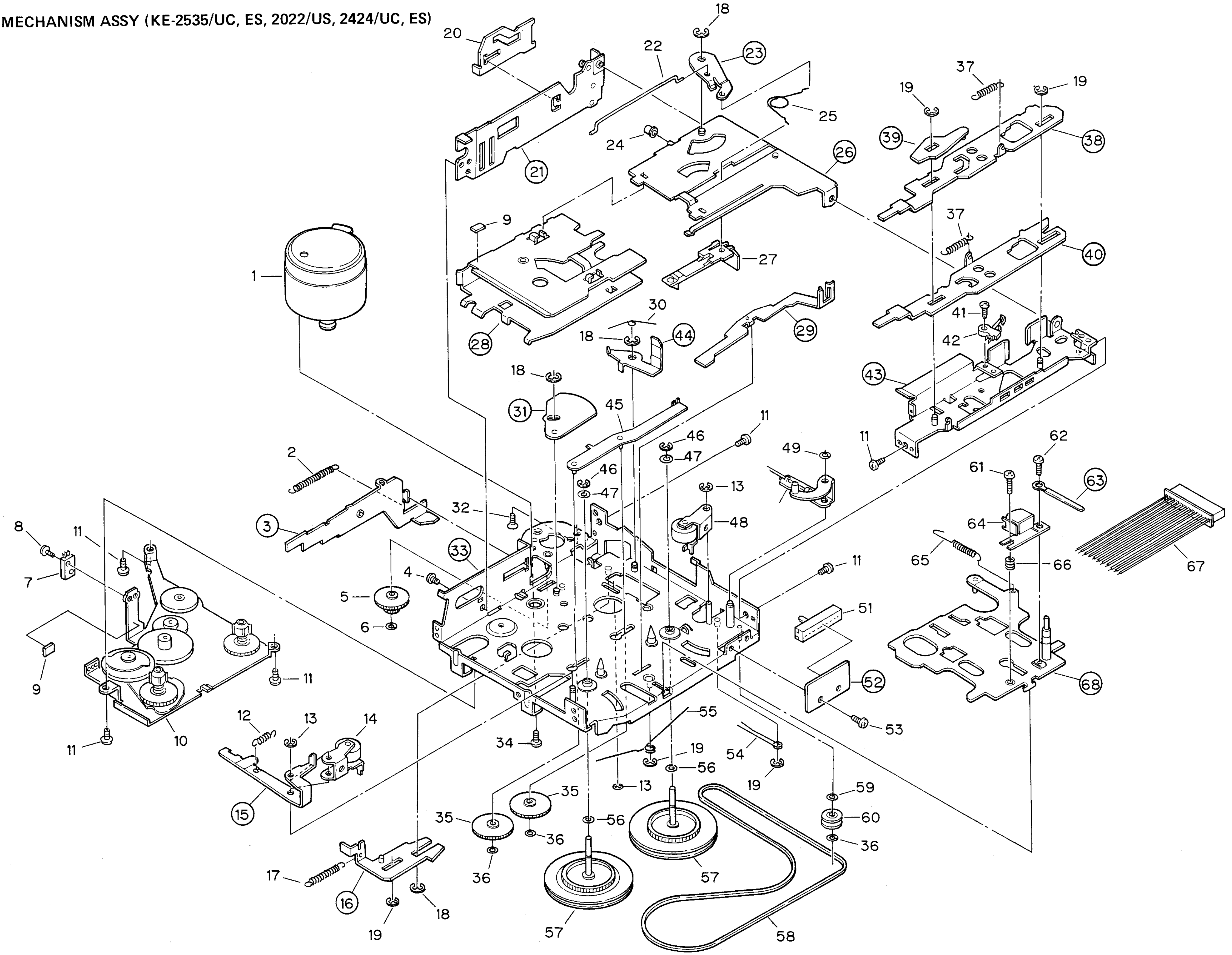

A
B
C
D
20
18
22
23
25
24
21
26
37
19
19
39
38
9
27
37
40
1
28
30
18
44
29
41
42
43
18
31
45
11
2
46
47
46
47
49
13
11
62
61
63
3
32
48
8
11
33
4
5
6
7
9
10
11
11
11
64
65
66
67
51
52
53
68
12
13
14
15
34
55
19
56
54
19
13
35
35
36
36
56
57
57
58
59
60
36
17
16
19
18
A
B
C
D

Fig. 21

- **Parts List**

NOTE:
- *For your*
  marks ★★
  ★★: GENE
  This classi
  model nun
- *Parts whos*
- *Parts mark*
  longer thai

Mark	No.
★★	1
	2
	3
	4
	5
	6
★★	7
	8
	9
	10
	11
	12
	13
★★	14
	15
	16
	17
	18
	19
	20
	2
	2
	2
	2
	2
	2
	2
	2
	2
	3
	3
	3
	3
	3
	3

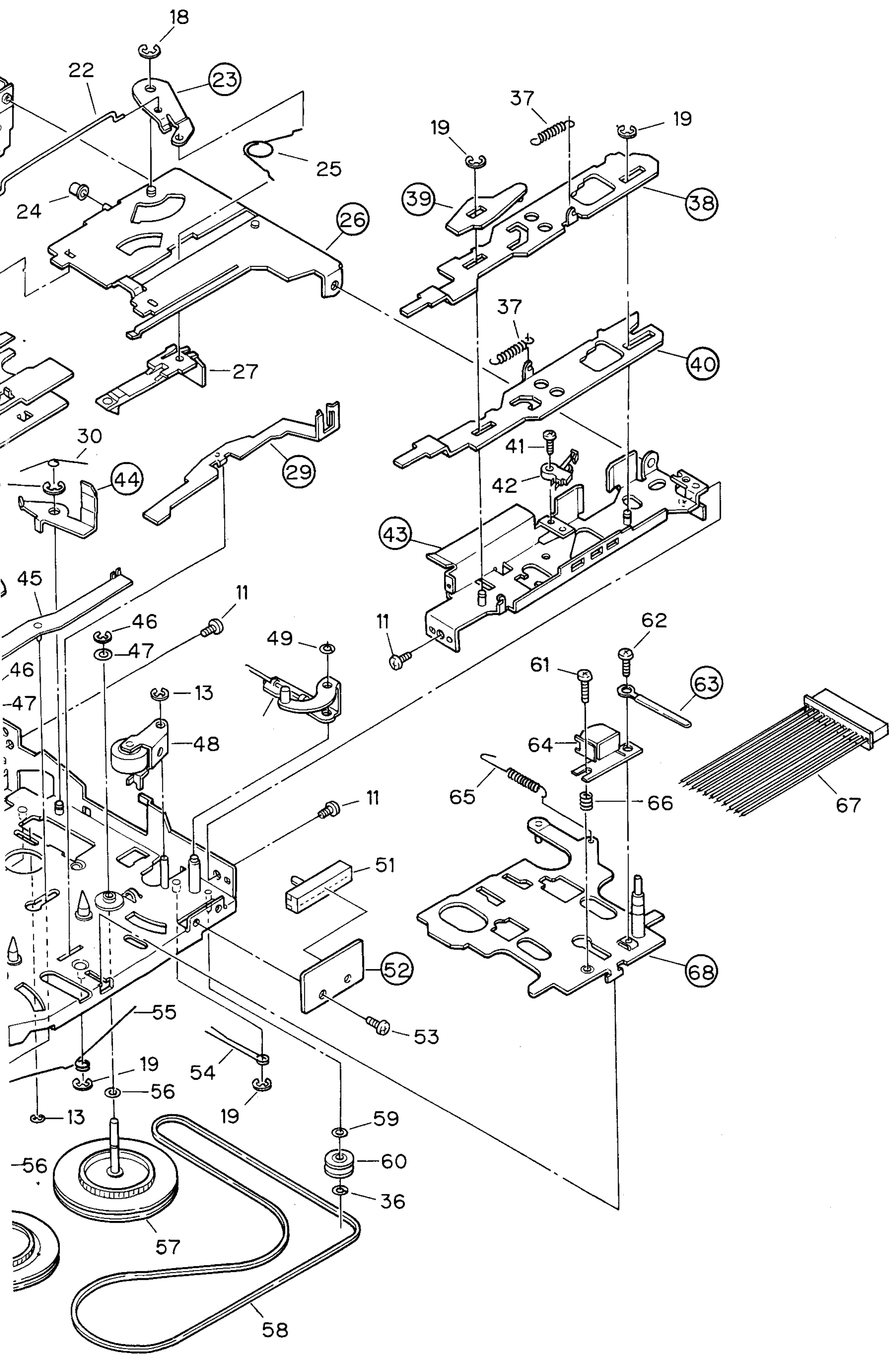


Fig. 21

- **Parts List**

NOTE:
- *For your parts Stock Control, the fast moving items are indicated with the marks ★★ and ★.*
  ★★: GENERALLY MOVES FASTER THAN ★.
  This classification shall be adjusted by each distributor because it depends on model number, temperature, humidity, etc.
- *Parts whose parts numbers are omitted are subject to being not supplied.*
- *Parts marked by "◉" are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.*

Mark	No.	Part No.	Description
★★	1	CZX4022	Motor Unit
	2	CZB4026	Spring
	3		Lever
	4	MVZ20P025FZK	Screw
	5	CZN4099	Gear
	6	CZB4036	Washer
★★	7	CZS4007	Switch
	8	MVZ17P080FZK	Screw
	9	CZN4111	Spacer
	10	CZX4024	Gear Assy
	11	BMZ23P030FMC	Screw
	12	CZB4031	Spring
	13	YE15FUC	E type washer
★★	14	CZL4012	Pinch Roller Assy(R)
	15		Lever
	16		Lever
	17	CZB4027	Spring
	18	YE20S	E type washer
	19	YE20FUC	E type washer
	20	CZN4105	Lever
	21		Bracket
	22	CZB4030	Spring
	23		Sub chassis
	24	CZL4015	Coller
	25	CZB4034	Spring
	26		Sub chassis
	27		Holder
	28		Sub chassis
	29		Sub chassis
	30	CZB4029	Spring
	31		Lever
	32	CMZ26P040FMC	Screw
	33		Chassis
	34	·PMZ26P025FZK	Screw
	35	CZN4103	Gear
	36	CZB4035	Washer
	37	CZB4024	Spring
	38		Lever
	39		Sub chassis
	40		Lever
	41	MVZ16P060FZK	Screw
★★	42	CZS4008	Switch
	43		Sub chassis
	44		Lever
	45	CZN4089	Arm
	46	YE16S	E type washer
	47	WA21D035D050	Washer
★★	48	CZL4013	Pinch Roller Assy(F)
	49	CZB4037	Washer
	50	CZN4088	Arm
★★	51	CZS4009	Switch
	52		P.C.Board
	53	PMA20P040FMC	Screw
	54	CZB4032	Spring
	55	CZB4028	Spring
	56	WA21D040D025	Washer
	57	CZN4106	Flywheel
★★	58	CZN4101	Belt
	59	WA16D032D025	Washer
	60	CZL4014	Pully
	61	CZB4038	Screw
	62	BMZ20P030FMC	Screw
	63		Clamper
★★	64	CZP4002	Head
	65	CZB4025	Spring
	66	CZB4033	Spring
	67		Cord Unit(11P)
	68		Sub chassis

14.2 CASSETTE MECHANISM ASSY (KE-1414/UC, ES, 1022/US)

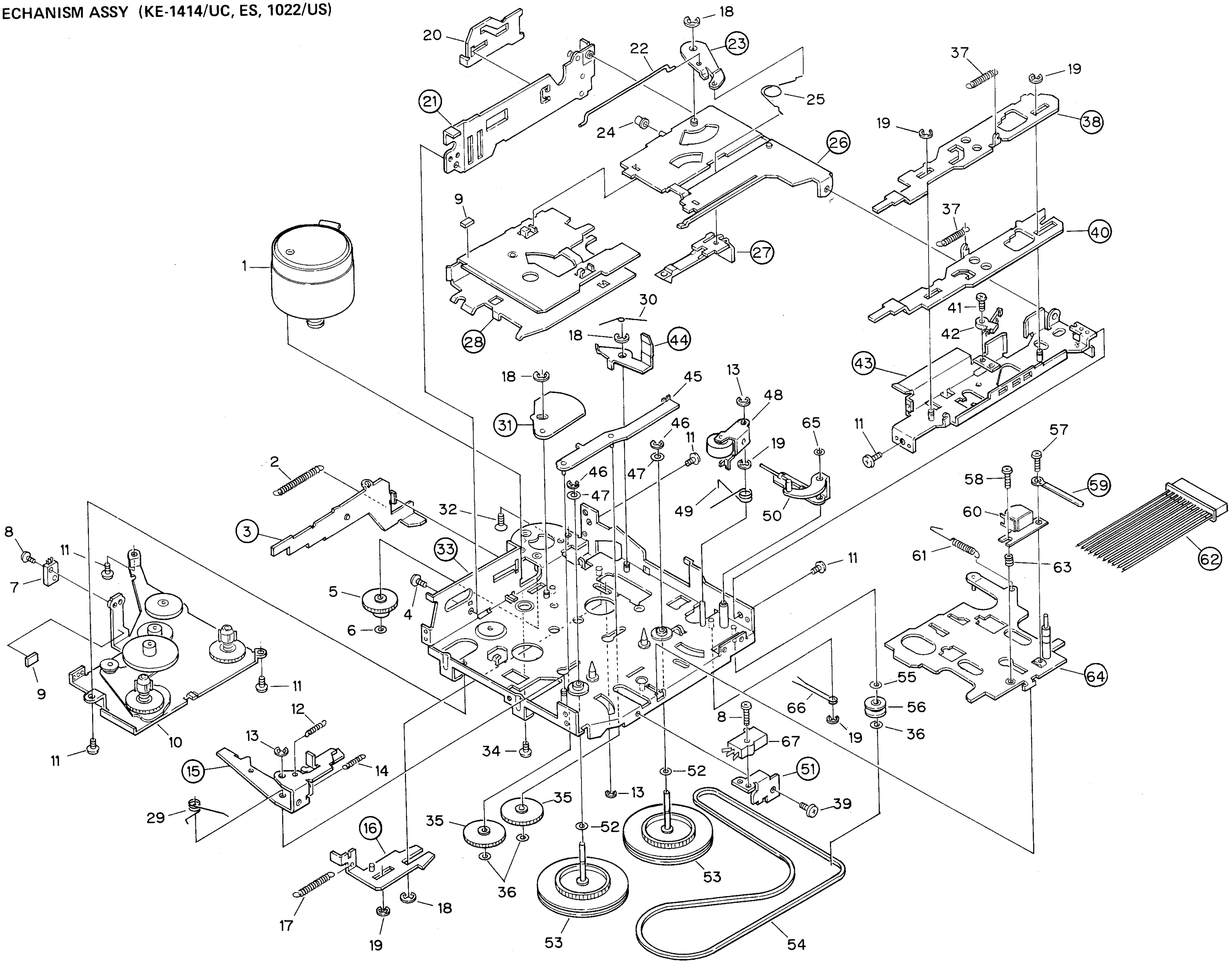


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Fig. 22

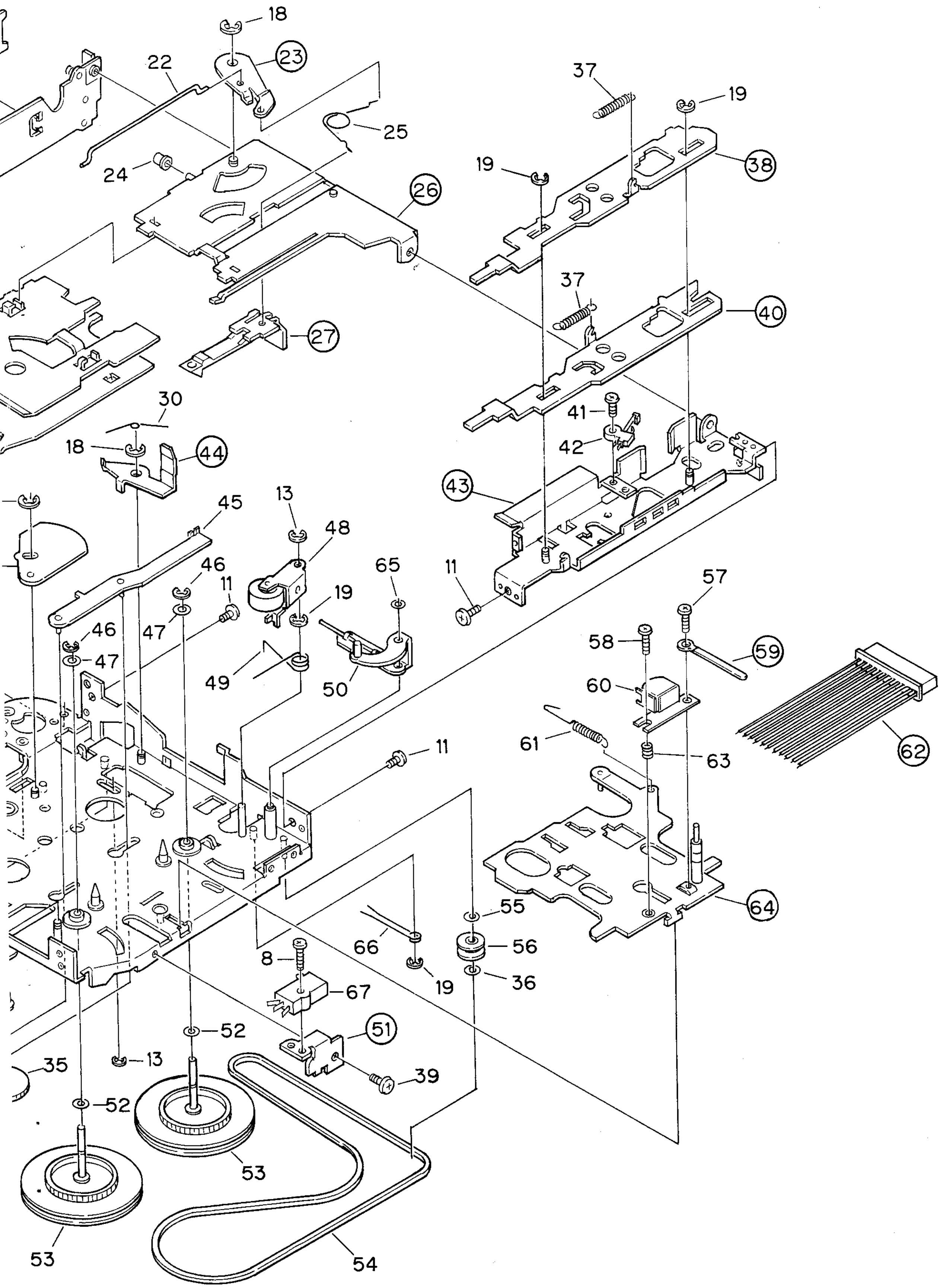


Fig. 22

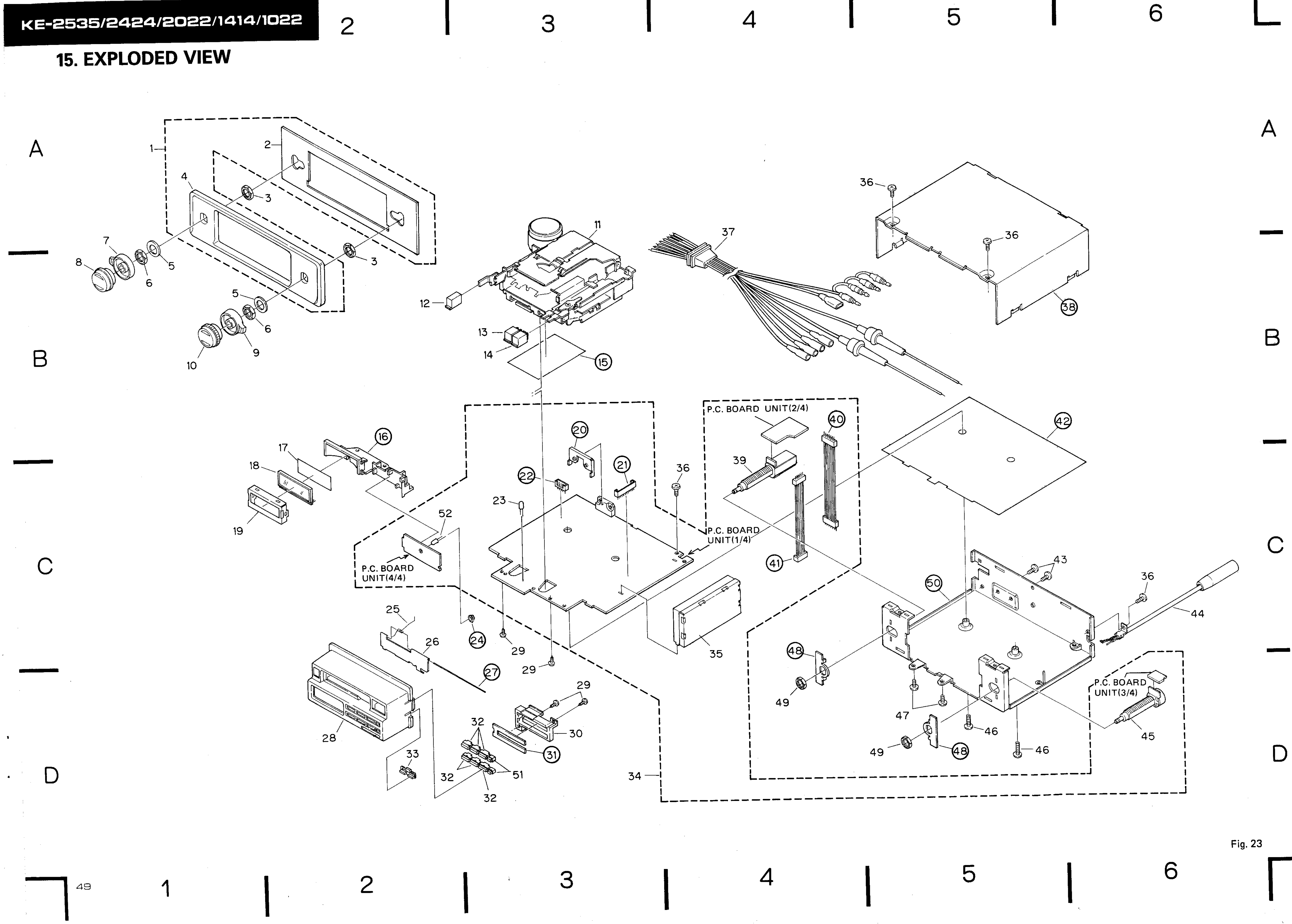
• Parts List

NOTE:
- *For your parts Stock Control, the fast moving items are indicated with the marks ★★ and ★.*
  ★★: GENERALLY MOVES FASTER THAN ★.
  This classification shall be adjusted by each distributor because it depends on model number, temperature, humidity, etc.
- *Parts whose parts numbers are omitted are subject to being not supplied.*
- *Parts marked by "◉" are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.*

Mark	No.	Part No.	Description
★★	1	CZX4022	Motor Unit
	2	CZB4026	Spring
	3		Lever
	4	MVZ20P025FZK	Screw
	5	CZN4099	Gear
	6	CZB4036	Washer
★★	7	CZS4007	Switch
	8	MVZ17P080FZK	Screw
	9	CZN4111	Spacer
	10	CZX4025	Gear Assy
	11	BMZ23P030FMC	Screw
	12	CZB4039	Spring
	13	YE15FUC	E type washer
	14	CZB4040	Spring
	15		Lever
	16		Lever
	17	CZB4027	Spring
	18	YE20S	E type washer
	19	YE20FUC	E type washer
	20	CZN4105	Lever
	21		Bracket
	22	CZB4030	Spring
	23		Sub chassis
	24	CZL4015	Coller
	25	CZB4034	Spring
	26		Sub chassis
	27		Holder
	28		Sub chassis
	29	CZB4041	Spring
	30	CZB4029	Spring
	31		Lever
	32	CMZ26P040FMC	Screw
	33		Chassis
	34	PMZ26P025FZK	Screw
	35	CZN4103	Gear

Mark	No.	Part No.	Description
	36	CZB4035	Washer
	37	CZB4024	Spring
	38		Lever
	39	MVZ26P040FZK	Screw
	40		Lever
	41	MVZ16P060FZK	Screw
★★	42	CZS4008	Switch
	43		Sub chassis
	44		Lever
	45	CZN4089	Arm
	46	YE16S	E type washer
	47	WA21D035D050	Washer
★★	48	CZL4013	Pinch Roller Assy(F)
	49	CZB4042	Spring
	50	CZN4088	Arm
	51		Bracket
	52	WA21D040D025	Washer
	53	CZN4106	Flywheel
★★	54	CZN4101	Belt
	55	WA16D032D025	Washer
	56	CZL4014	Pully
	57	BMZ20P030FMC	Screw
	58	CZB4038	Screw
	59		Clamper
★★	60	CZP4003	Head
	61	CZB4025	Spring
	62		Cord Unit(11P)
	63	CZB4033	Spring
	64		Sub chassis
	65	CZB4037	Washer
	66	CZB4032	Spring
★★	67	CZS4010	Switch

15. EXPLODED VIEW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P.C. BOARD UNIT(1/4)
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P.C. BOARD UNIT(4/4)

Fig. 23

● Parts L

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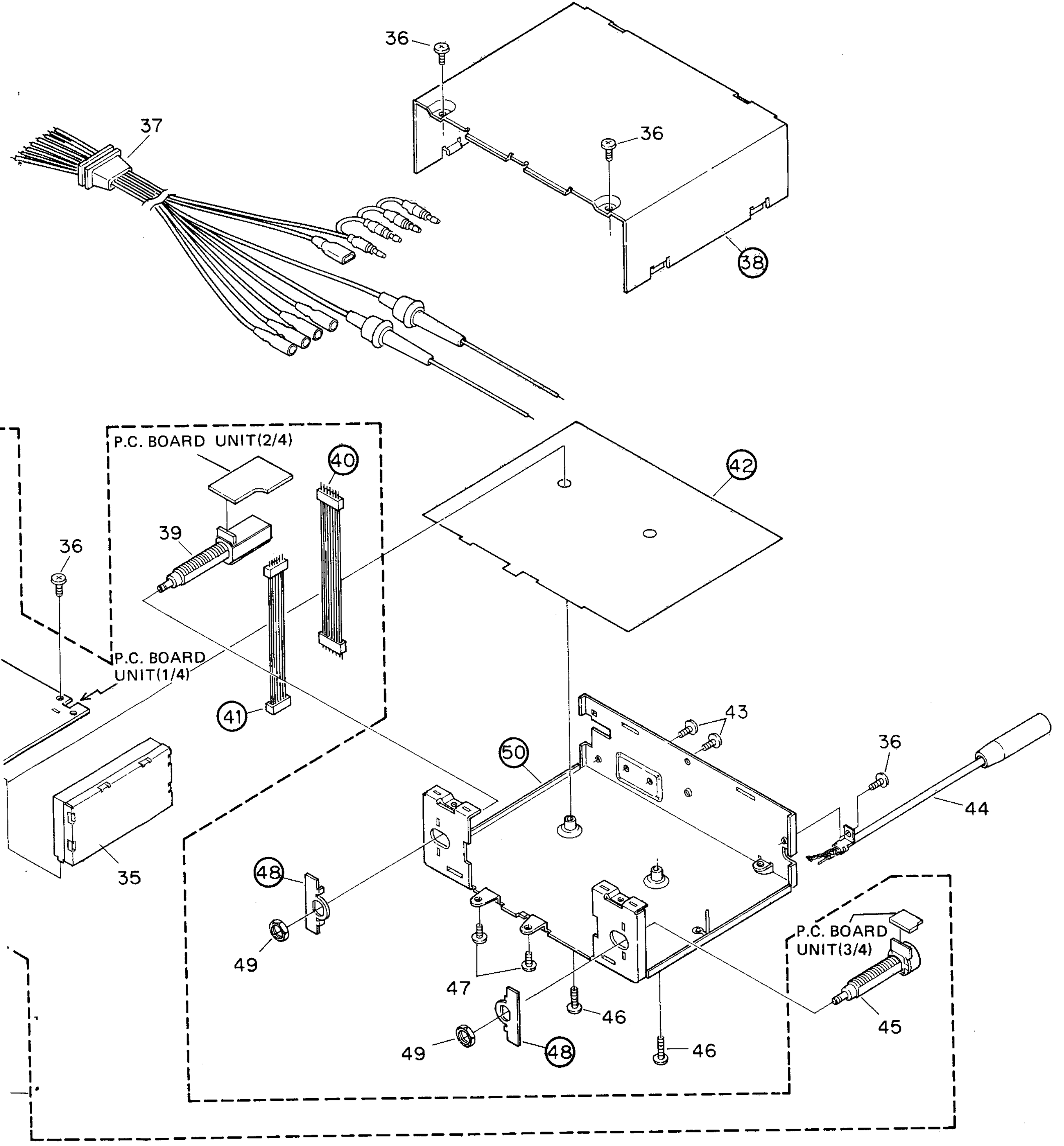

Fig. 23

- **Parts List**

Mark	No.	Part No.	Description
	1	CZX4013	Panel Assy (KE-2022,1022)
		CZX4016	Panel Assy (KE-2424,1414)
		CZX4020	Panel Assy (KE-2535)
	2	CNG-633	Panel
	3	CBN-028	Nut
	4	CNS1684	Panel (KE-2535)
		CNS1696	Panel (KE-2424,1414)
		CNS1697	Panel (KE-2022,1022)
	5	WBX0FZK	Washer
	6	NKX0FZK	Nut
★	7	CAA1172	Knob(TONE)
★	8	CAA1173	Knob(KE-2535)
		CAA1177	Knob (KE-2424,2022,1414,1022) (VOL.,FADER,POWER)
★	9	CZA4024	Knob(BAL.)
★	10	CAA1177	Knob(BAL.)
◉	11	CZX4012	Cassette Mechanism Assy (KE-2535,2424,2022)
		CZX4023	Cassette Mechanism Assy (KE-1414,1022)
★	12	CZA4016	Button
★	13	CZA4018	Button
★	14	CZA4017	Button
	15		Insulator
	16		Holder
	17	CZN4016	Lens
	18	CZW4032	LCD
	19	CZN4070	Cover
	20		Bracket
	21		Connector(11P)
	22		Connector(6P)(KE-2535)
★★	23	CZE4006	Lamp(KE-2535,2424,1414)
		CZE4008	Lamp(KE-1022,2022)
	24		Holder
	25	CZB4023	Spring
	26	CZA4023	Door (KE-2535,2424,2022)
		CZA4028	Door (KE-1022,1414)
	27		Shaft
	28	CZN4075	Grille(KE-2022)
		CZN4078	Grille(KE-2424)
		CZN4079	Grille(KE-1022)
		CZN4080	Grille(KE-1414)
		CZN4081	Grille(KE-2535)
	29	BBZ20P060FMC	Screw
	30	CZN4076	Lens
	31		Cushion
★	32	CZA4020	Button
★	33	CZA4022	Button
◉	34	CZW4014	P.C.Board Unit (KE-2022/US)
		CZW4016	P.C.Board Unit (KE-2424/UC)
		CZW4018	P.C.Board Unit (KE-2424/ES)
		CZW4021	P.C.Board Unit (KE-1022/US)
		CZW4023	P.C.Board Unit (KE-1414/UC)
		CZW4025	P.C.Board Unit (KE-1414/ES)
		CZW4028	P.C.Board Unit (KE-2535/UC)
		CZW4030	P.C.Board Unit (KE-2535/ES)
◉	35	CZW4033	Tuner Unit (KE-2535,2424,2022)
		CZW4001	Tuner Unit (KE-1414,1022)
	36	BSZ30P060FMC	Screw
	37	CZD4009	Cord Assy (KE-2424/UC,2022/US, 1022/US,1414/UC)
		CZD4011	Cord Assy(KE-2535/UC)
		CZD4018	Cord Assy (KE-2424/ES,1414/ES)
		CZD4019	Cord Assy(KE-2535/ES)
	38		Case
★★	39	CZC4015	Volume (KE-2424, 2022,1414,1022)
		CZC4016	Volume (KE-2535)
	40		Cord Unit(7P)
	41		Cord Unit(6P)(KE-2535)
	42		Insulator
	43	BMZ26P060FMC	Screw
	44	CZD4003	Antenna Cable
★★	45	CZC4007	Volume
	46	BMZ30P100FMC	Screw
	47	BSZ30P080FMC	Screw
	48		Bracket
	49	CBN-028	Nut
	50		Case Unit
★	51	CZA4021	Button
★★	52	CZE4008	Lamp(KE-1022,2022)
		CZE4012	Lamp (KE-2535,2424,1414)

16. ELECTRICAL PARTS LIST

NOTE:

- *For your parts Stock Control, the fast moving items are indicated with the marks ★★ and★.*
  ★★: GENERALLY MOVES FASTER THAN★.
  This classification shall be adjusted by each distributor because it depends on model number, temperature, humidity, etc.
- *Parts whose parts numbers are omitted are subject to being not supplied.*
- *The part numbers shown below indicate chip components.*
  Chip Resistor
  RS1/8S□□□J, RS1/10S□□□J
  Chip Capacitor (except for CQS.....)
  CKS....., CCS....., CSZS.....

Unit Number :
Unit Name : P.C.Board Unit

MISCELLANEOUS

Mark	Circuit Symbol & No.	Part Name	Part No.
**	IC 101		LA1140B
**	IC 102		BA1332
**	IC 301		LA3161
**	IC 501		TA7281P
**	IC 801 (KE-1414.1022)		TC9304F-013
**	IC 801 (KE-2535.2424.2022)		TC9304F-025
**	Q 101		2SJ103
**	Q 102 402 801 803 804 805		2SC4038
**	Q 103 (KE-1414.1022)		DTC114YS
**	Q 401		2SD1858
**	Q 403		2SA1559
**	Q 501 551		2SD1920
**	Q 802		2SK246
*	D 101 102 103 104 105 251 252 253 301 351		1SS133
*	D 302		1SR139
*	D 401		MTZ10JB
*	D 402		1S1885
*	D 705		MTZ5R1JB
*	D 707 801 802 803 806 807 809 810		1SS133
*	D 804 805		MTZ5R6JB
*	D 821 (KE-2535ES.2424ES.1414ES)		1SS133
	L 401		CZT4018
	L 402	Ferri-Inductor 10μH	CZT4016
	L 403	Ferri-Inductor 220μH	CZT4019
	T 101	Transformer	CZT4017
	TC 801	Trimer 20pF	CZC4014
	CF 101	Filter	CZT4020
	X 801	Xtal 7.2MHz	CZS4001
**	IL 401	Lamp (KE-2535.2424.1414)	CZE4006
**	IL 401	Lamp (KE-2022.1022)	CZE4008
**	IL 402	Lamp (KE-2022.1022)	CZE4008
**	IL 402	Lamp (KE-2535.2424.1414)	CZE4012
**	S 1 2 3 4 5 6 7 8 9 10		CZS4006
**	VR 101	Semi-fixed 50kΩ(B)	CZC4013
**	VR 102	Semi-fixed 5kΩ(B)	CZC4012
**	VR 103	Semi-fixed 2kΩ(B)	CZC4011
**	VR 501	Volume	CZC4007
**	VR 502/S502	Volume/Switch (KE-2424.2022.1414.1022)	CZC4015
**	VR 502/S502	Volume/Switch (KE-2535)	CZC4016
	LCD		CZW4032

RESISTORS

Mark	Circuit Symbol & No.	Part Name	Part No.
	R 101		RD1/4PS331JL
	R 102		RD1/4PS150JL
	R 103 107		RD1/4PS223JL
	R 104		RD1/4PS270JL
	R 105		RD1/4PS183JL
	R 108 302 352		RD1/4PS822JL
	R 109 (KE-2535ES.2424ES.1414ES)		RD1/4PS273JL
	R 109 (KE-2535UC.2424UC.2022US.1414UC.1022US)		RD1/4PS822JL
	R 110		RD1/4PS683JL
	R 111 114 503 805 807 810 814		RD1/4PS473JL
	R 112 128 254 302 352 307 357 806 808		RD1/4PS103JL
	R 113		RD1/4PS823JL
	R 115 304 354		RD1/4PS104JL
	R 121 251 252 802 803 820		RD1/4PS102JL
	R 122 709 815		RD1/4PS182JL
	R 125 127 404 405 801 813		RD1/4PS222JL
	R 253		RD1/4PS563JL
	R 301 351		RD1/4PS680JL
	R 303 353		RD1/4PS224JL
	R 305 355 (KE-2535, 2424, 2022)		RD1/4PS332JL
	R 305 355 (KE-1414, 1022)		RD1/4PS392JL
	R 306 402		RD1/4PS221JL
	R 401 710		RD1/4PS471JL
	R 403		RD1/4PS332JL
	R 406		RD1/4PS3R3JL
	R 407		RD1/2PS220JL
	R 408		RD1/2PS100JL
	R 501 551 712 818 821 822		RD1/4PS472JL
	R 504 554		RD1/4PS101JL
	R 506 124 126		RD1/4PS562JL
	R 510 560		RD1/4PS512JL
	R 804		RD1/4PS391JL
	R 811		RD1/4PS821JL
	R 812 (KE-2535, 2424, 2022)		RD1/4PS102JL
	R 812 (KE-1414, 1022)		RD1/4PS563JL
	R 816		RD1/4PS681JL
	R 823		RD1/4PS272JL

CAPACITORS

Mark	Circuit Symbol & No.	Part Name	Part No.
	C 1		CCSQSL150J50
	C 2		CCSQSL040C50
	C 3 23		CCSQSL101J50
	C 4 7 8 22 24		CKSQYF103Z50
	C 6 56 58		CCSQUJ100D50
	C 9		CCSQSL100J50
	C 10		CEA100M16LL
	C 11 19		CCSQUJ120J50
	C 12		CCSQSL120J50
	C 13		CCSQUJ180J50
	C 14 51		CEA220M16LL
	C 15		CKSYB473K25
	C 17		CCSQSL180J50
	C 18		CCSUJ080D50
	C 20		CCSQUJ090D50
	C 52 54 60 65 66 71 73		CKSQYB223K50
	C 53		CKSQYB222K50
	C 55 57 59		CKSYB223K25
	C 61		CCSUJ431J50
	C 62		CCSUJ150J50
	C 63		CEA010M50LL
	C 64		CEA101M16LL
	C 67 69		CEA3R3M50LL
	C 68		CEA4R7M50LL
	C 70		CKSYB333K25
	C 72 74		CKSYF104Z25

nit Number :
Unit Name : Head P.C.Board

Mark	Circuit Symbol & No.	Part Name	Part No.
**	S 1	Switch (FWD/REV SELECTOR)	CZS4009

Miscellaneous Parts List

Mark	Circuit Symbol & No.	Part Name	Part No.
**	HD 1	Head(KE-2535. 2424. 2022)	CZP4002
**	HD 1	Head(KE-1414. 1022)	CZP4003
**	M	Motor Unit	CZX4022
**	S 1	Switch(MUTE)	CZS4008
**	S 2	Switch(TUNER/TAPE SELECTOR)	CZS4007
**	S 3	Switch(KE-1414. 1022)	CZS4010